moffatt & nichol

Third Stakeholder Meeting 8/17/2022

Willapa Shoreline Erosion Mitigation Master Plan

In Collaboration with :

THE WATERSHED COMPANY

E360

MOTT MACDONALD

Detailed Agenda

› Welcome (Charlene Nelson with Shoalwater Bay Tribe & Paul Plakinger with Pacific County)	5 min
› Meeting Etiquette (Dawn Spilsbury with The Watershed Co)	5 min
› Purpose of the Meeting (Shane Phillips with Moffatt & Nichol)	5 min
› Status Update on Master Plan Elements (Shane Phillips & Younes Nouri with Moffatt & Nichol)	80 min
› Discussion (All)	20 min
› Follow up & Action Items (Dawn Spilsbury with The Watershed Co.)	5 min

WELCOME!

ATTENDEES/INVITEES

ENTITY	REPRESENTATIVE(S)
Pacific County	Paul Plakinger, Shawn Humphreys
WECAN & County Planning Commission	Kelly Rupp, Connie Allen
Cranberry Growers	David Cottrell
Community Members	Rebecca Chaffee
Shoalwater Bay Tribe	Charlene Nelson, Earl Davis, Larissa Pfleeger
U.S. Army Corps of Engineers	Chris Behrens, Dave Michalsen, Aurora Deangelis Caban
WA Department of Transportation	Chelsey Martin, Garrett Jackson, Chad Hancock
WA Department of Ecology	George Kaminsky, Henry Bell, Bobbak Talebi
Pacific Conservation District	Mike Nordin
WA Sea Grant	Jackson Blalock
Consulting Team	Shane Phillips, Younes Nouri (Moffatt & Nichol); Dan Nickel, Dawn Spilsbury (Watershed), Sarah Round (Strategies 360), Aaron Porter (Mott MacDonald)

Meeting Etiquette

- Please mute phones
- Please take cell phone calls outside
- Please raise hands
- Everyone gets a chance to speak
- Feel free to get up and move
- Virtual attendees – please stay muted when not speaking and use the raise-hand function
- The meeting will not be recorded, but notes and slides will be distributed after the meeting

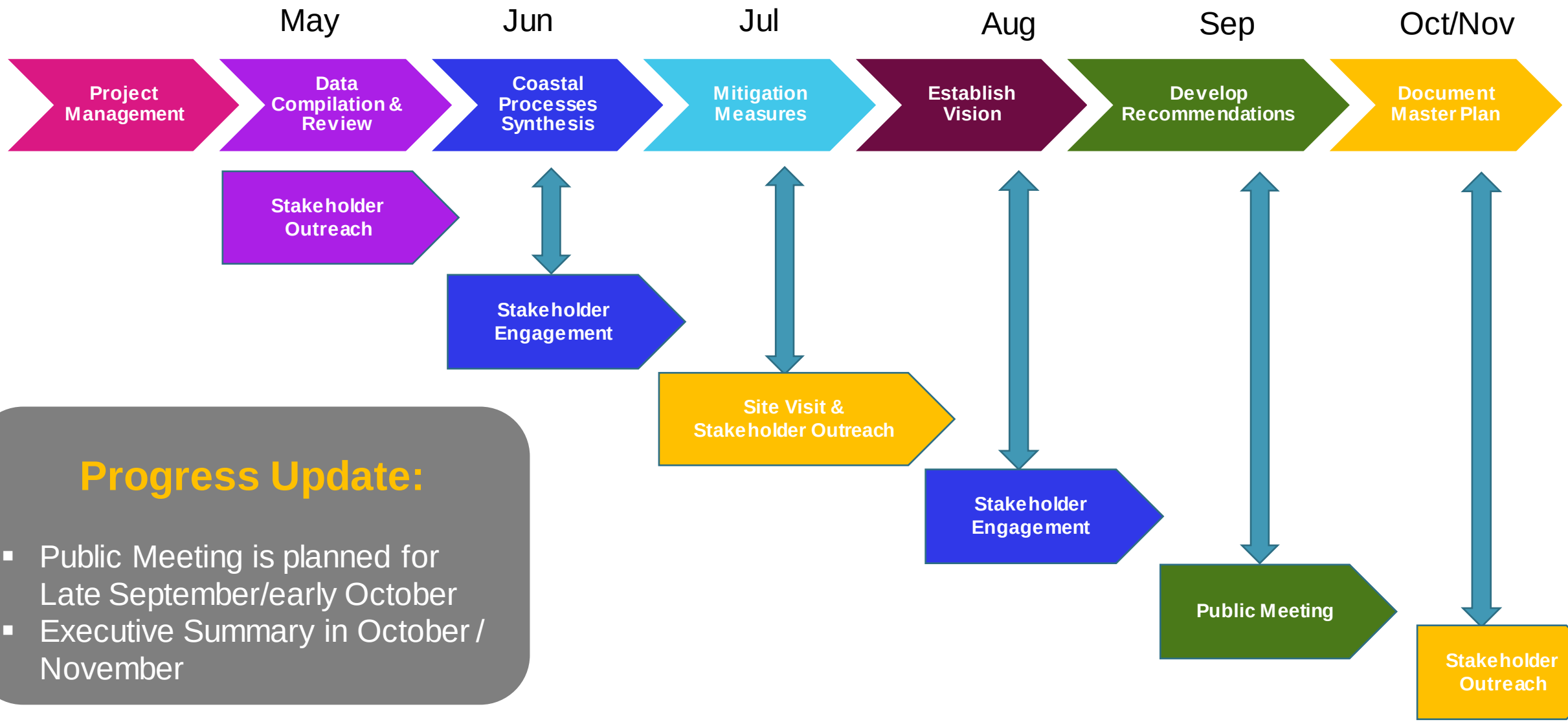
Purpose of Meeting

- Provide a progress update on the Master Plan elements
  - Data compilation and review >> Identify data gaps
  - Coastal processes
  - Mitigation measures
  - Vision
  - Recommendations for next steps
- Seek Feedback from Community/Agencies on Various Items
- Establish Next Steps and Follow up Action Items

Master Plan Study Area

Scope of Work

Schedule for Implementation



Progress Update:

- Public Meeting is planned for Late September/early October
- Executive Summary in October / November

Data Compilation

Scope of Work

- Review/Document Historical Data
- Identify/Document Data Gaps
- Identify/Document Funding Opportunities
- Identify/Document Best Management Practices – Ongoing Work
- Review of Data Catalogue by Stakeholders

Historical Data Compilation & Review

Subject: DRAFT summary of data compiled in 2018 for Pacific County Demonstration Project
Date:
Description Files are organized alphabetically by the Agency (Column A). Within an agency, data is organized by date (Column B).

Agency Prov	Year	Data Cate	Type	Title	Author(s) - If Applicable	Notes
Diking District	1900	Literature	Dike Description	Pacific County Comissioners Records		
Diking District	1904	Imagery & Maps	Maps	Drainage District No. 1 Survey		
Diking District	1904	Literature	Contract	Swank Contract		
Diking District	1933	Imagery & Maps	Orthoimagery	Grays Harbor-Olympia Canal Project Aerial Map		
Diking District	1961	Literature	Report	Watershed Work Plan - Grayland Watershed - Grays Harbor & Pacific Counties		
Diking District	2011	Regulatory	Letter	WDFW Cranberry bogs and WDFW Regulatory Authority		
Diking District	2017	Regulatory	Shoreline Exemption	Shoreline Exemption #P1700545	Pacific County Drainage District	
Diking District	2017	Regulatory	HPA	North Cove Shoreline Defense HPA		
DOT	2000-2002	Elevation	Topography			
DOT	2012	Elevation	Topography	February 2012 Dike Topo Survey		
Hart Crowser	1997	Literature	Memorandum	Geotechnical Engineering Assessment - Rock Groin & Underwater Geotextile Tube Dikes	John Verduin & Garry Horvitz	
Mott MacDonald	2020	Literature	Master Plan Report	Willapa North Shoreline Protection Demonstration Project Design Report	Aaron Porter, Shane Phillips	
Mott MacDonald	2020	Costs	Cost Estimate	Dynamic Revetment Construction Cost Estimate		
Mott MacDonald	2020	Regulatory	Biological Assessment	Willapa Bay Demonstration Project BA		
Mott MacDonald	2020	Regulatory	JARPA	Willapa Bay Demonstration Project JARPA		
Mott MacDonald	2020	Regulatory	SEPA	Willapa Bay Demonstration Project SEPA		
Mott MacDonald	2020	Design	PS&E	North Shoreline Protection Demonstration Project PS&E		
Mott MacDonald	2020	Regulatory	Cultural Resource Survey	Cultural Resource Survey for the North Willapa Shoreline Protection Project	Archaeological Investigations Northwest, Inc.	
PIE	Unknown	Literature	Memorandum	SR105 Emergency Stabilization Project Beach Nourishment Maintenance Costs, Options, and Construction Scheduleing		
PIE	Unknown	Literature	Memorandum	Channel Migration and Shoreline Erosion Rate Estimates Accuracy Analysis		
PIE	1997	Literature	Technical Document	Groin maintenance & rehabilitation summary		
PIE	1997	Literature	Report	Past & Predicted Future Channel and Shoreline Migration Rates in Willapa Bay	PIE	
PIE	1999	Literature	Memorandum	Groin issues - SR105 Emergency Stabilization Project		
PIE	1997	Literature	Memorandum	Preliminary Analysis - Dike Configuration - Initial Design Determinations Based on Results of 2D Hydrodynamic Modeling		
PIE	1997	Literature	Letter	Willapa Bay Stabilization Study - Quarry Evaluations	Richard [illegible]	
PIE	2003, 2006	Elevation	Profiles	Topographic Profiles		
PIE	2000, 2006	Elevation	Profiles	Bathymetric Profiles		
Shannon & Wilson	2018	Geotech	Sloep Stability Analysis	Slope Stability Analysis - Submarine Rock Groin		
Shannon & Wilson	2019	Literature	Letter	Re: Geologic Review Summary North Willapa Bay Shoreline Protection Project		
TU Delft	2009	Literature	Thesis	An Approach to medium-term coastal morphological modelling		
USACE	2000	Literature	Report	Study of Navigation Channel Feasiblity, Willapa Bay		
USACE	2001	Modeling	Model	CMS model files		
USACE	2002	Literature	Report	Study of Navigation Channel Feasiblity, Willapa Bay; Report 2 Entrance Channel Monitoring and Study of Bay Center Entrance Channel		
USACE	2002	Literature	Paper	Channel Reliability Study, Willapa Bay		
USACE	2007	Literature	Report	Shoalwater Bay Shoreline Erosion, WA; Flood and Coastal Storm Damage Reduction; Appendix 1 Engineering Analysis and Design (Final Draft)		
USACE	2007	Modeling	Model	ADCIRC model		
USACE	2009	Literature	Report	Shoalwater Bay Shoreline Erosion, WA; Flood and Coastal Storm Damage Reduction; Appendix 1 Engineering Analysis and Design		
USACE	2009	Literature	Report	Shoalwater Bay Shoreline Erosion, WA; Flood and Coastal Storm Damage Reduction; Final Post-Authorization Decision Document and Final Environmental Assess		
USACE	2009	Literature		Shoalwater Bay Decision Final		
USACE	2009	Literature	Report	Shoalwater Bay EA Final		
USACE	2010	Literature	Paper	Barrier Island Restoration for Storm Damage Reduction: Willapa Bay, WA		
USACE	2011	Design	Drawings	Shoalwater Bay FY2011 Dune Restoration Plan		
USACE	2012	Literature	Presentations	May 2012 Workshop PPT Slides		
USACE	2014	Elevation	Topobathy LiDAR	2014 USACE NCMP Topobathy Lidar DEM: Washington		
USACE	2016	Elevation	MBES, Transects			

Progress Update:

- Building Upon Library Developed for Demonstration Project, Existing Info has been Compiled

Historic & Ongoing Erosion Mitigation Efforts

TIME

1998

2006

2015

2019

2022

WSDOT SR105 Emergency Stabilization (1998-2000)

Private Revetment (2006)

WSDOT SR105 Emergency Repairs (2006-2014)

PCD/DD Emergency Repair (2015-2021)

WSDOT Patch Repairs of Submarine Netting Repair (2014-2015)

USACE Shoalwater Dune Restoration (2019)

County Demonstration Project (2020)

DD Repairs (2021-present)

USACE Shoalwater Dune Restoration (2022)

WSDOT Graveyard Spit Stabilization (2023/2024)

Data Compilation – Example from WSDOT

Project Title	Mile Posts	Total Funding	Location	Advertisement Date	Operationally Complete
SR 105/Emergent Roadway Embankment Protection	20.15	1,462,883	South of Grayland	11/17/06	06/22/07
SR 105/Washaway Beach - Rock Stockpile for Embankment Erosion Repa	20.08-20.12	114,974	North Cove	10/25/12	12/12/12
SR 105/North Cove to Washaway Beach Erosion Protection 2015	20.00 - 20.50	875,595	Pacific County	01/13/15	02/18/15
SR 105/North Cove Vicinity - Erosion Protection 2017	19.58-20.58	3,557,771	Washaway Beach	06/26/17	04/02/18
SR 105/Embankment Erosion Repair	20.78-20.86	1,269,989	South of North Cove	09/13/21	04/30/22
SR 105/Washaway Beach Vicinity - Slope Protection	19.90-20.40	1,206,875	West of Tokeland	10/03/22	12/30/22
SR 105/North Cove Vic - Coastal analysis for flood/erosion risk mgmt.	19.40 - 20.80	65,572	N Cove to Shoalwater	Funding Start Date: 1/17/2017	
		36,948,936			

Purpose of Data Compilation is to catalog available types of data, not necessarily access/download all data

As an example, for each of the above WSDOT erosion mitigation efforts, there is associated documents

Data Compilation – Summary & Next Steps

- **Summary:**
  - A library of existing information has been compiled, building on the library develop for County's Demonstration Project
  - There is need for an assigned person/entity to support project partners with maintaining this library
  - Access to historic/past information reduces inefficiencies and helps build alignment/partnership among partners

- **Recommendations for Next Steps:**
  - Identify a host for the compiled library as a central repository
  - Make this library accessible to all partners and stakeholders
  - Secure funding to update this library annually

Grant Funding Opportunities

Use of Grant Funding Opportunities

- **Challenges & Considerations:**

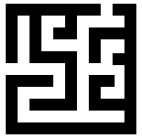

Staff Capacity


Local Match Requirements


Timing for Submission


Funding Type (Maintenance vs. Capital Construction)


Continuity of Funding


Complicated Process


Alignment of Purpose & Need w Funding Purpose

- **Opportunities:**


Intergovernmental Collaboration


Collaboration with Academia


Public Support


Leverage Local/State $$ to Secure Federal Grants

- **Action Items:**
  - Maintain a Central Library of Applicable Grants
  - Maintain a 'Funding Application Primer' tailored to North Willapa

Funding Opportunities

Federal

FEMA

US Army Corps of Engineers®

NOAA

U.S. Fish & Wildlife Service

State

Washington State Legislature

Washington State Department of Transportation

Department of Ecology State of Washington

Sea Grant Washington

Local/Tribal Govt

Pacific County Washington

Shoalwater Bay Tribe Nᾰmps Chaahts

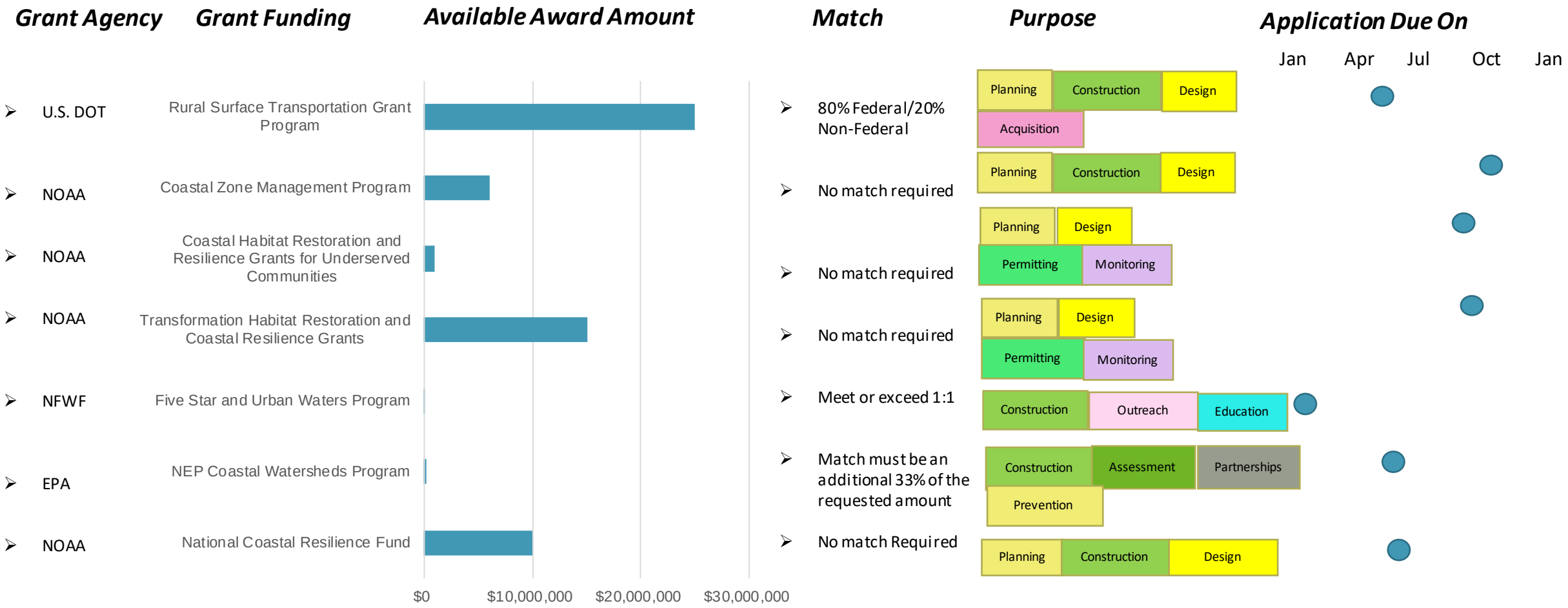
Pacific County Drainage District

Pacific Conservation District

Library of Applicable Funding Opportunities

Grant Agency	Name	Grant Limit	Purpose (Restoration, Acquisition, …)	Competition	Available	Match Requirement
FEMA	Hazard Mitigation Grant Program (HMGP)		post-disaster, all hazards, plar	Statewide	After Presidential d	12.5% to 25%
FEMA	Building Resilient Infrastructure Communities (BRIC)	$1 million per applicant -	Pre-Disaster, All Hazards, Plar	Nationally	Annually	25% (10% for tribes/in
FEMA	Flood Mitigation Assistance (FMA) Grants	Varies by use. $50	Pre-disaster, flood hazard onl	Nationally	Annually	0 to 25%
FEMA	Cooperating Technical Partners (CTP) Program		Flood hazard mapping	Regional	Annually	0 percent
FEMA	Pre-Disaster Mitigation Program (Now Replaced with BRIC)					
WA Ecology	Floodplains by Design	Achievable in thre	Reduce flood risk and restore	State	Bi-Annually	20% (0% for economic
WA Ecology	Flood Control Assistance Account Program (FCAAP)	No limit but antici	creation or updating of Comp	State	Bi-Annually	20% to 25%
NOAA/NFWF	National Coastal Resilience Fund	$125,000-$5,000,	Seeks to restore, increase and strengthen natural infrastructure to protect coastal comr			
NOAA/NFWF	Regional Coastal Resilience Grants Program		roads, bridges, and major projects, highway safety, waterways, resiliency			
NOAA/NFWF	America the Beautiful Challenge 2022	Varies by use. $200k - $1 million for State, Territ		Nationally	Expected Annually	Varies by Fund: 0-50%
DOT	Infrastructure Investment and Jobs Act (IIJA) 2022					
USACE	Continuing Authorities Program (CAP) Section 103	$5 million	shoreline protection of public	Nationally	continuously	Depends on use and p
State Legislature	Washington State Legislature (Washington State Conservation Commission)-shellfish program		conservation of shellfish	State		
WA RCO	Aquatic Lands Enhancement Act (ALEA)			State		
WA RCO	Washington Coast Resiliency and Restoration Initiative (WCRRI) (possible but not request	$2 million	Acquisition, Restoration, Plan	State		None
State Legislature	Legislature line item once you need over a certain amount - Commerce capital project list (House originates)					
USFWS	North American Wetlands Conservation Act Standard Grants Program	$100,000- $1,000	Conserve wetlands and associ	National	Annually	1:1 nonfederal matchi
EPA	NEP Coastal Watersheds Grant Program	$75,000- $250,00	Projects must address one or	National	Annually	
USFWS	North American Wetlands Conservation Act Small Grants Program	Up to $100,000	Supports public-private partn	National	Annually	1:1 nonfederal matchi
NFWF, WHC	Five Star and Urban Waters Grant Program	Range from $20K -	habitat restoration, stormwat	National	Annually	meet or exceed 1:1

Grant Funding Opportunities – More Federal Grants



1 State Coastal Zone Management Programs are the applicant for those grants, funding can go to subgrantees
2 NOAA may choose to combine FY 22 & FY 23 grant opportunities for Coastal Habitat Restoration and Resilience Grants for Underserved Communities and the Transformation Habitat Restoration and Coastal Resilience Grants. If this is the case, the next time they will be available is 2024

Community Project Funding Request

Funding Source	Typical Award Amount	Match	Purpose	Application Due On
➢ Washington State Legislature	$200,000 - $1 million	➢ No match required	Design / Construction / Acquisition	Jan
➢ Federal Government	Varies based on request type	➢ Match required depends on which type of request	See Appendix A for funding award types per Appropriations Bill	Apr
				Jul
				Oct
				Jan

Intergovernmental Collaboration - Opportunities

- Memorandum of Understanding (MOU)
- MOU between tribal, federal, state and local governments, agencies and public districts to coordinate long-term working relationships and applications for funding sources
- Further helps show broad governmental and community support for grant applications and federal and legislative community project funding requests

Technical Criteria and Points

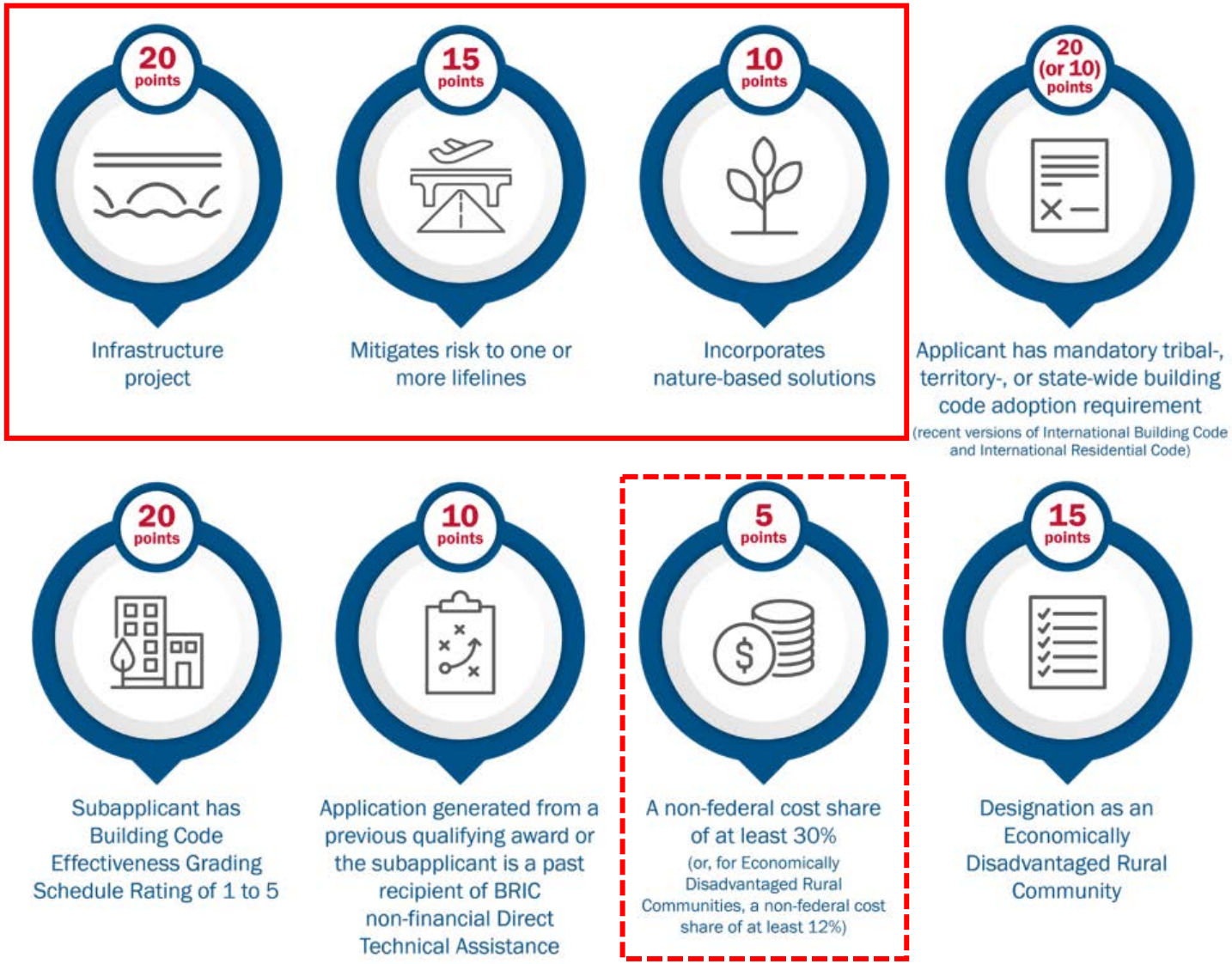
Project-related factors that can earn application points

Infrastructure project to mitigate natural hazard to relative to critical assets and environment

Lifeline protection – transportation, energy, safety

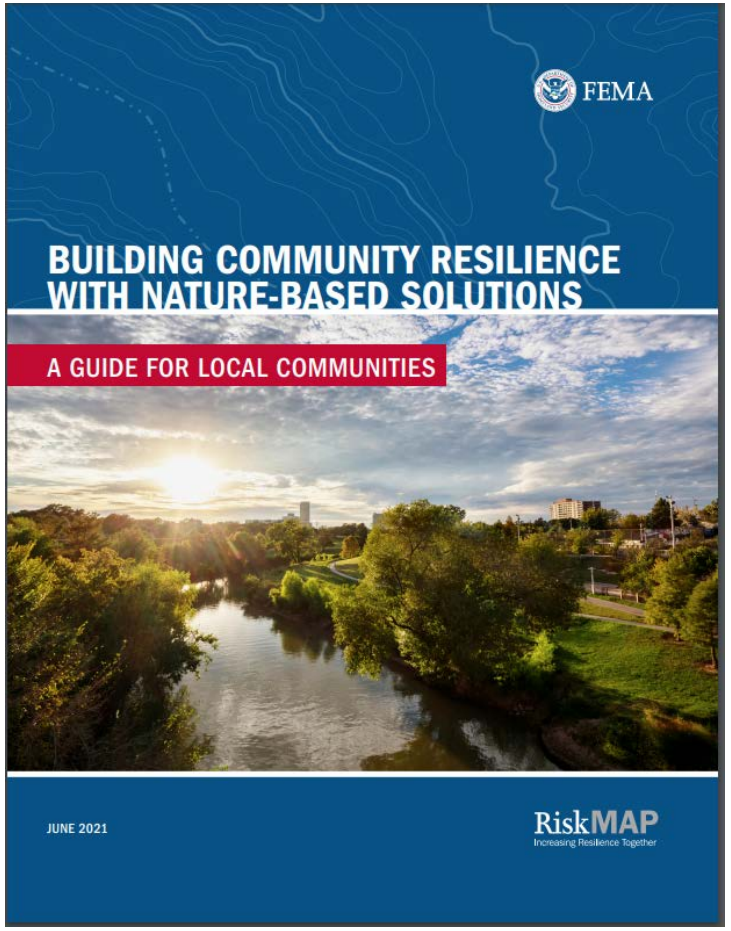
Nature based systems – dynamic revetment

Non-Federal Cost Share



Nature-Based Solution (FEMA Terminology)

- Need for establishing dynamic revetments as a ‘nature-based’ solution (FEMA term) and “Design with nature’ (USACE term)

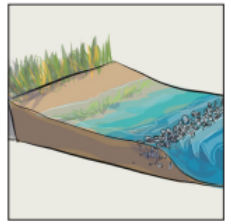


COASTAL AREAS

COASTAL WETLANDS

Coastal wetlands are found along ocean, estuary, or freshwater coastlines.

They are often referred to as “sponges” because of their ability to absorb wave energy during storms or normal tide cycles.



OYSTER REEFS

Oysters are often referred to as “ecosystem engineers” because of their tendency to attach to hard surfaces and create large reefs made of thousands of individuals.

In addition to offering shelter and food to coastal species, oyster reefs buffer coasts from waves and filter surrounding waters.

DUNES

Dunes are coastal features made of blown sand. Healthy dunes often have dune grasses or other vegetation to keep their shape.

Dunes can serve as a barrier between the water’s edge and inland areas, buffering waves as a first line of defense.

WATERFRONT PARKS

Waterfront parks in coastal areas can be intentionally designed to flood during extreme events, reducing flooding elsewhere.

Waterfront parks can also absorb the impact from tidal or storm flooding and improve water quality.

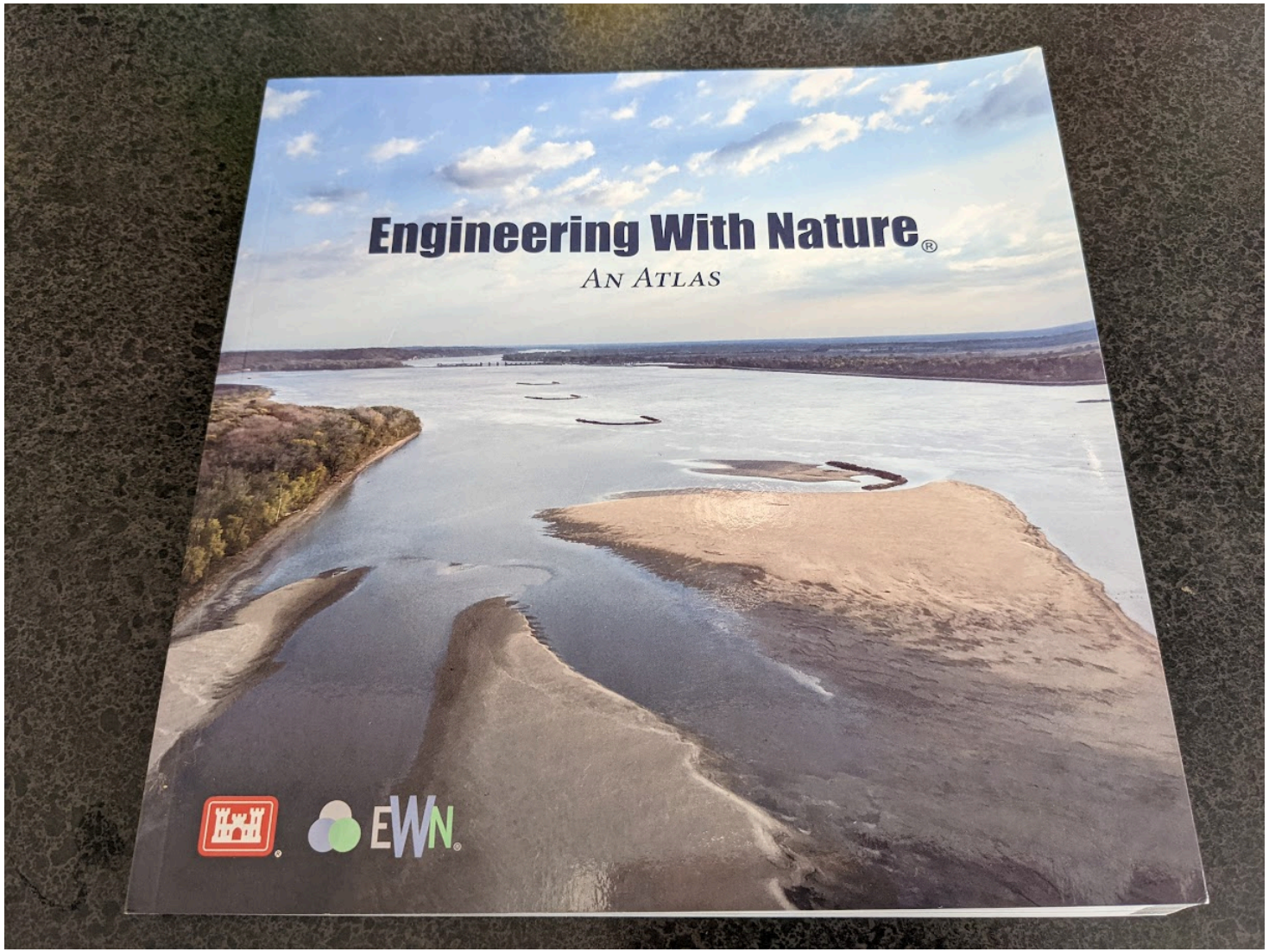
LIVING SHORELINES

Living shorelines stabilize a shore by combining living components, such as plants, with structural elements, such as rock or sand.

Living shorelines can slow waves, reduce erosion, and protect coastal property.

Design with Nature (USACE Terminology)

- Need for establishing dynamic revetments as a ‘nature-based’ solution (FEMA term) and “Design with nature’ (USACE term)



Grant Funding – Summary & Next Steps

- **Summary**:
  - There is Need to establish some form of local funding to provide the match required (if applicable)
  - There is need for an assigned person/entity to support project partners with grant funding applications

- **Recommendations:**
  - Identify a host for the compiled library of applicable funding opportunities and provide annual updates
  - Maintain a 'Funding Application Primer' tailored to North Willapa
  - Maintenance funding through WSDOT programs to address climate change, SLR, coastal erosion, flooding across SW Region; could be a nexus to establish a funding stream for long term maintenance needs
  - Consider establishing a MOU between project partners
  - Conduct legislative outreach (see following slides)
  - Alignment of project mitigation actions (erosion/flood protection) w/ Grant Funding programs
  - Alignment of terminology used with funding agency requirements (see following slides for details)

Legislative Outreach

Legislative Outreach – Effective Meetings

1. • Have a Two-Pager to Introduce the Project and Define the Ask
2. • Hold pre-meeting with meeting participants
3. • Have clear meeting purpose, i.e. introduction to project, funding ask
4. • Send follow-up email – summarize meeting and ask
5. • Keep in regular communication with elected officials and staff

Example for a Two-Pager

Mexico Beach Recovery and Resiliency Partnership

In 2018, Hurricane Michael slammed into Mexico Beach, FL, causing widespread damage and destruction. Three people were killed, and more than three-quarters of the homes in Mexico Beach were destroyed or severely damaged. In 2019, the City of Mexico Beach teamed up with the U.S. Environmental Protection Agency (EPA) and FEMA, as part of the Recovery and Resiliency Partnership Project (RPP), to help the community develop a vision for a more sustainable future, through better stormwater management and urban design, resulting in the Recovery and Resiliency Partnership Stormwater Management and Greenspace Project for Mexico Beach.

To develop this vision, the City and the RPP initiated a significant public engagement process, and then undertook existing conditions and needs/opportunities analyses in order to establish the framework for the six design projects proposed as a result of the engagement process. The proposed projects include creating a regional stormwater detention network, utilizing existing wetlands; establishing several wetland parks; converting an existing canal to a stormwater pond; extending an existing greenway; creating a greenway-blueway trail system throughout the city; and restoring a local park that was partially destroyed during Hurricane Michael. Although the outcomes of these proposed projects are not yet known, the process has produced a variety of implementable projects that community stakeholders can support.

Addressed Hazards

PRIMARY HAZARD
Coastal Flooding

Hurricanes

Community-Driven Plan for Action

This effort brought together community stakeholders to collaboratively develop creative nature-based solutions for stormwater management. The wide range of implementable and scalable projects proposed focus on leveraging existing conditions to reduce flood risk while creating open space and improving recreational amenities.

Damage caused by Hurricane Michael in Mexico Beach, FL
Source: Shutterstock

Mexico Beach, FL
FEMA Region 4

Community Lifelines

Hover over the Primary Lifeline to learn more.

PRIMARY LIFELINE

Safety & Security

Food, Water, Sheltering

Transportation

FEMA | Building Resilient Infrastructure and Communities

Table of Contents | Case Studies | Case Study Guide

Mitigation Action Portfolio: **Coastal Flooding** | 27

Example for a Two-Pager

Mexico Beach Recovery and Resiliency Partnership

Details

Project Owner
City of Mexico Beach

Type of Project
Stormwater Management Plan

Area of Impact
Has potential to impact all of Mexico Beach (Total Pop: 1,198 in 2017)

$ Cost

Total Project Cost
The cost of developing new plans, codes, or ordinances include community staff time and any outside consultants to provide technical support and associated analysis. Changes will typically include economic analyses looking at construction components, practices, and short- and long-term maintenance costs.

Funding Sources

Federal Funding
FEMA's Public Assistance Grant Program: $2.7 million

Benefits

Primary

- Reduces physical damage to buildings and infrastructure from stormwater and flood events
- Reduces loss of service to infrastructure, especially roads and other transportation systems

Secondary

- Reduces associated loss of service to businesses and other organizations from short-term road closures
- Offers social benefits of providing the surrounding community with a park for recreation and green space

Partnerships

FEMA

City of Mexico Beach

U.S. EPA

Project Timeline

Start Date
Stakeholder and community engagement process began in September of 2019

Project Completion Date
Final report released December 2019

Resources & References

Allen, Greg. 2019. "Recovery Is Slow In The Florida Panhandle A Year After Hurricane Michael." October 10, 2019. NPR. https://www.npr.org/2019/10/10/768722573/recovery-is-slow-in-the-florida-panhandle-a-year-afterhurricane-michael.

FEMA. 2019. "Federal Emergency Management Agency awards City of Mexico Beach $2.7 million for Hurricane Michael expenses." March 17, 2019. https://www.fema.gov/press-release/20210318/fema-awards-city-mexico-beach-27-million-hurricane-michael-expenses#:~:text=FEMA%20awards%20City%20of%20Mexico%20Beach%20%242.7%20million%20for%20Hurricane%20Michael%20expenses,-March%2018%2C%202019&text=Tallahassee%2C%20Fla.,under%20FEMA's%20Public%20Assistance%20Program.

Haughey, John. 2019. "Florida to use $633 million federal 'disaster mitigation' grant for resilience planning." *The Center Square*. October 18, 2019. https://www.thecentersquare.com/florida/florida-to-use-million-federal-disaster-mitigation-grantfor-resilience/article_5dc147fc-f1ce-11e9-9e77-432ad7c92799.html.

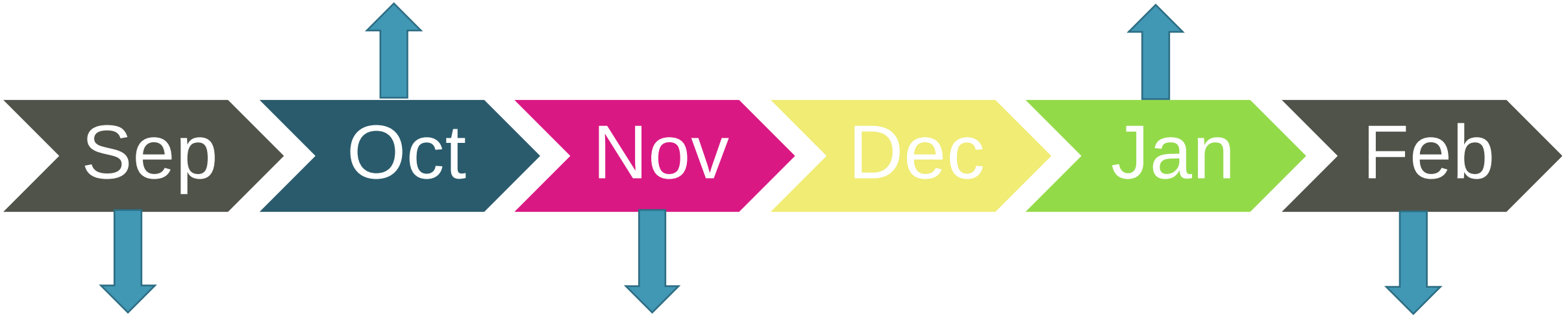
Recovery and Resiliency Partnership. 2019. "Mexico Beach Stormwater Management and Greenspace Project." December 2019. https://mexicobeach.skeo.com/wp-content/uploads/2020/02/Mexico-Beach-Report-Final.pdf.

Damage caused by Hurricane Michael in Mexico Beach, FL
Source: Shutterstock

Tips for Securing Legislative Funding

- Requested funding adds important public benefits
- Requested funding is a small portion of the total project funding (25% or less)
- Requested funding results in a complete project or phase usable by public for intended purpose when state funds are expected
- Requested funding is for a project that is ready for construction and will be completed in the biennium

Initiating a State Legislative Community Project Request



- Define Funding Request (Specific Ask) and Purpose
- Compile Support Letters (WECAN, Local Associations and Governments, Chambers of Commerce)

Meet with staff from Governor's Office of Financial Management responsible for the capital budget for Dept of Ecology

Meet with all three members of the 19th Legislative Delegation

Applications open from both the House and the Senate for legislative community project requests

Deadline to complete an application for both House and Senate

Legislative Outreach – Summary & Next Steps

- **Summary:**
  - Legislative outreach is key for securing certain grants
  - There are ways to have an effective meeting with legislative representatives
  - Need concurrence on the priorities for the Ask
- **Recommendations for Next Steps:**
  - Develop a two-pager for each project – Need input on going forward and strategy
    - Ecology has similar document?
    - Part of final master plan Executive Summary
  - Set up pre-meetings with staffers – The Who, When….Tell the overall story
  - Consider developing a MOU

Coastal Processes

Scope of Work

- Summarize Coastal Processes
- Revisit Shoreline Reach Development
- Review Coastal Analysis by Stakeholders

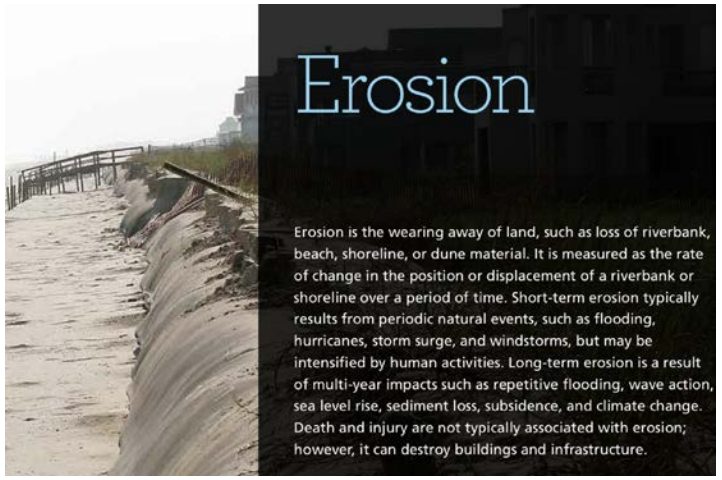
Progress Update:

- Targeted Outreach to Stakeholders

- Building on Demonstration Project
- Formulating summary narrative & graphics

Coastal Processes & Hazards

- Waves
- Estuarine Tidal Hydrodynamics
- Geomorphologic Processes

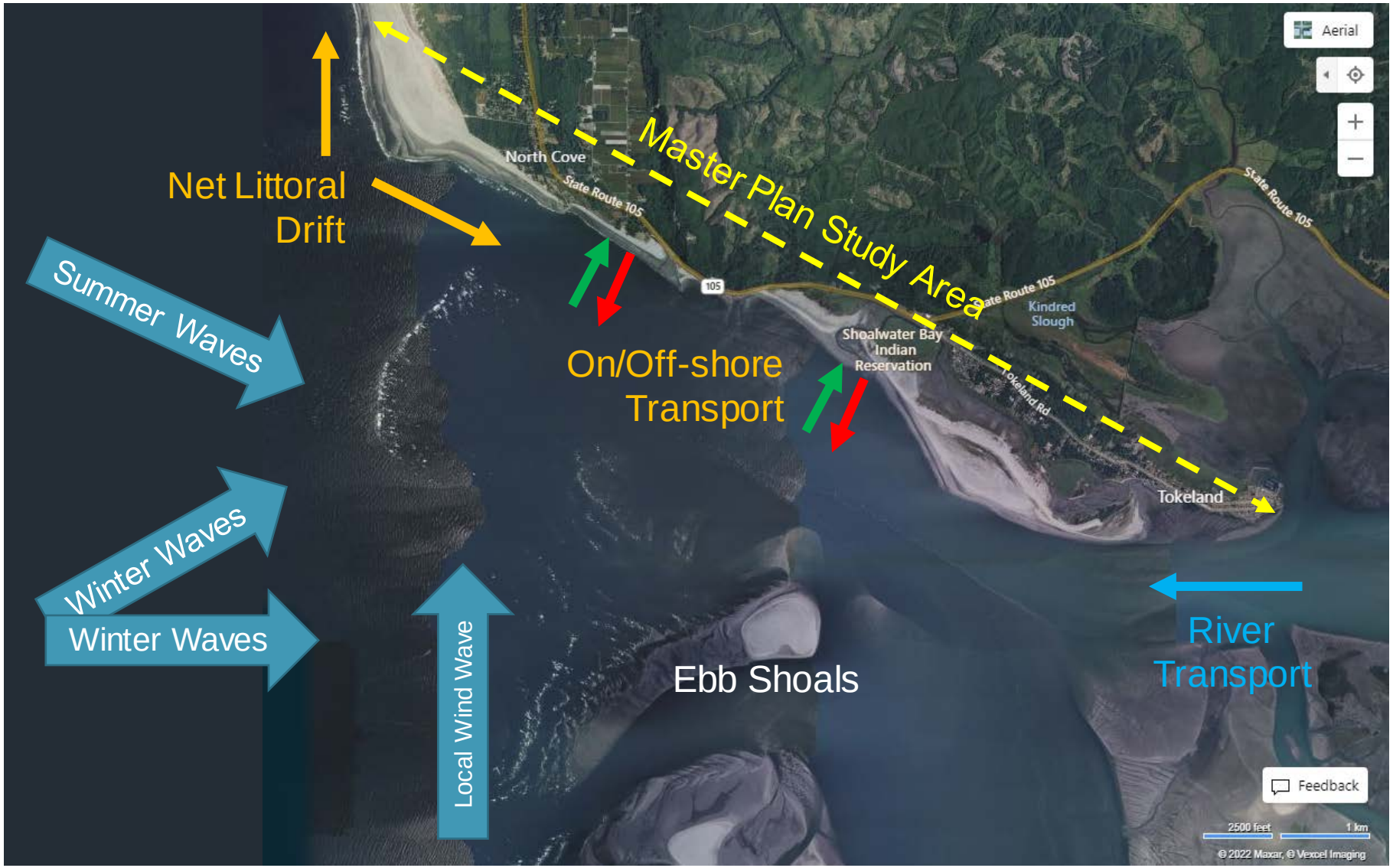


Coastal & Estuarine Processes

- River Flow and Main Entrance Channel
  - Historical northward migration of the channel seems to have slowed/stabilized recently
- Wave Climate
  - Offshore climate most severe during La Nina and week El Nino cycles increasing frequency of storms tracking from south-southwest
  - Largest offshore waves from southwest during winter storms
  - Northwest offshore waves during summer are smaller
- Ebb shoals shelter stretches of the shoreline from waves

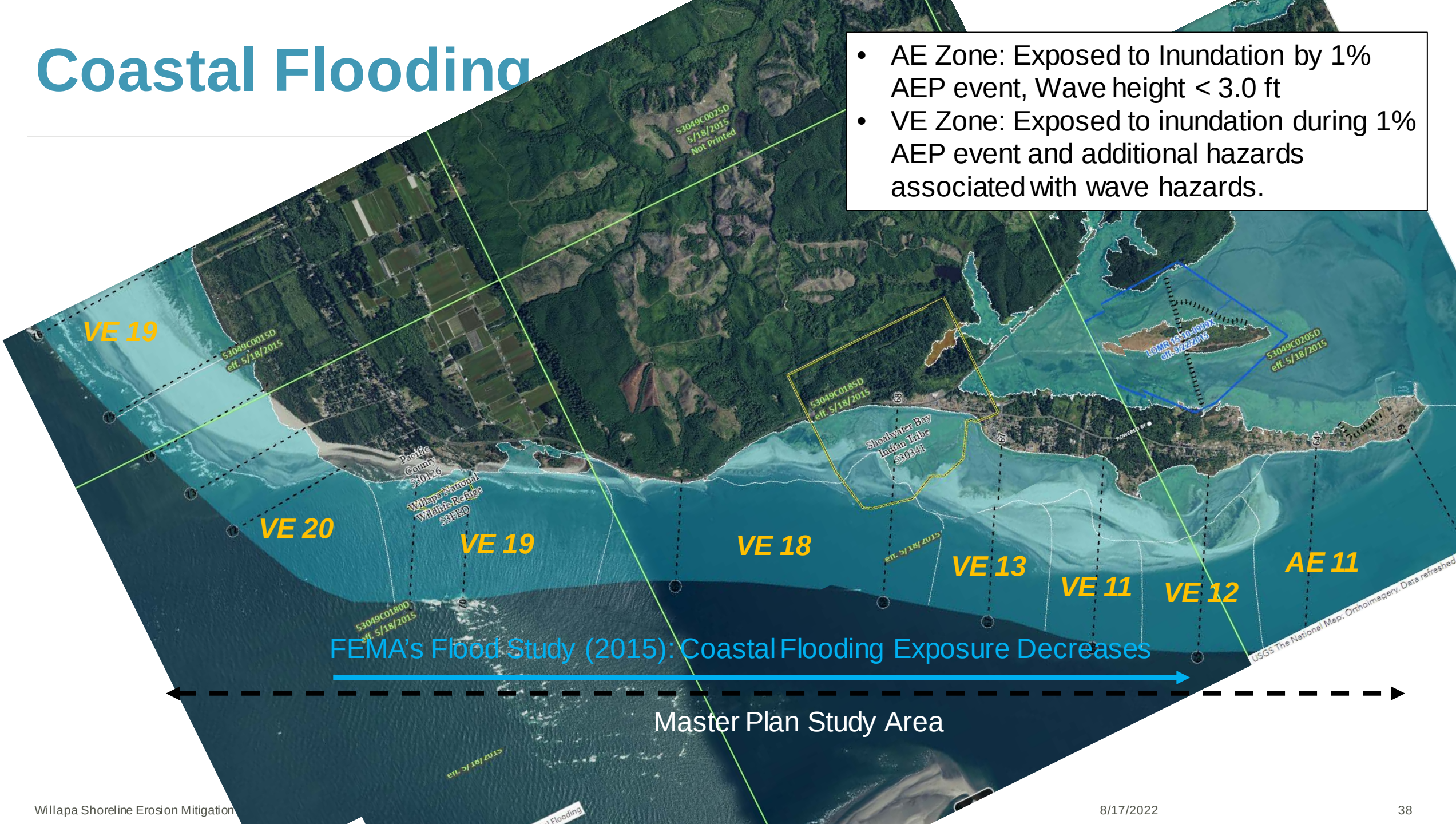
Sediment Transport & Shoreline Erosion

- Shoreline Erosion driven by a complex combination of coastal processes:
  - Northward migration of Willapa Bay Entrance Channel
  - Increasingly severe wave climate
  - Loss of sand supply from Graveyard and Empire Spits
  - Loss of windblown sand from beaches to the north

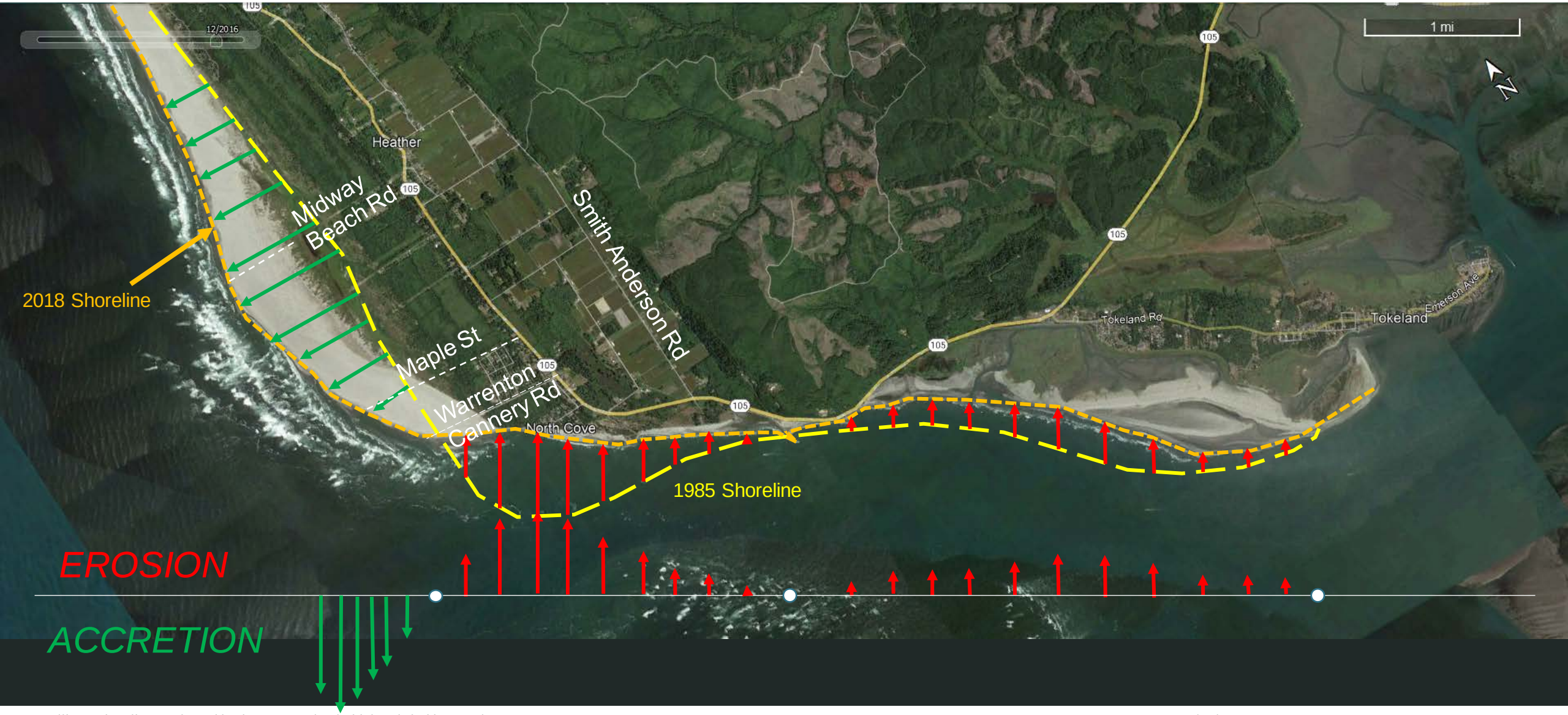


Coastal Flooding

- AE Zone: Exposed to Inundation by 1% AEP event, Wave height < 3.0 ft
- VE Zone: Exposed to inundation during 1% AEP event and additional hazards associated with wave hazards.

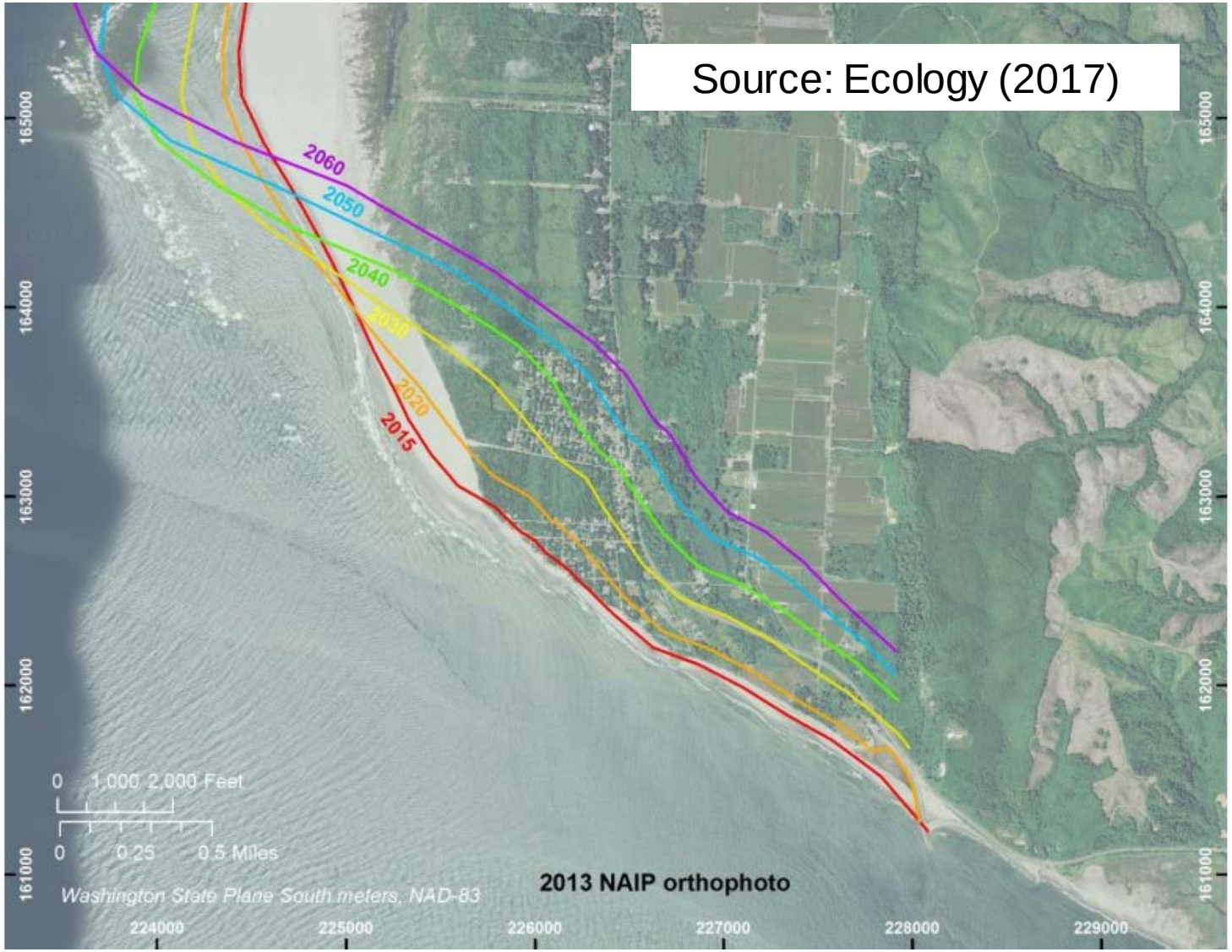


Past Shoreline Change (1985 to 2018)



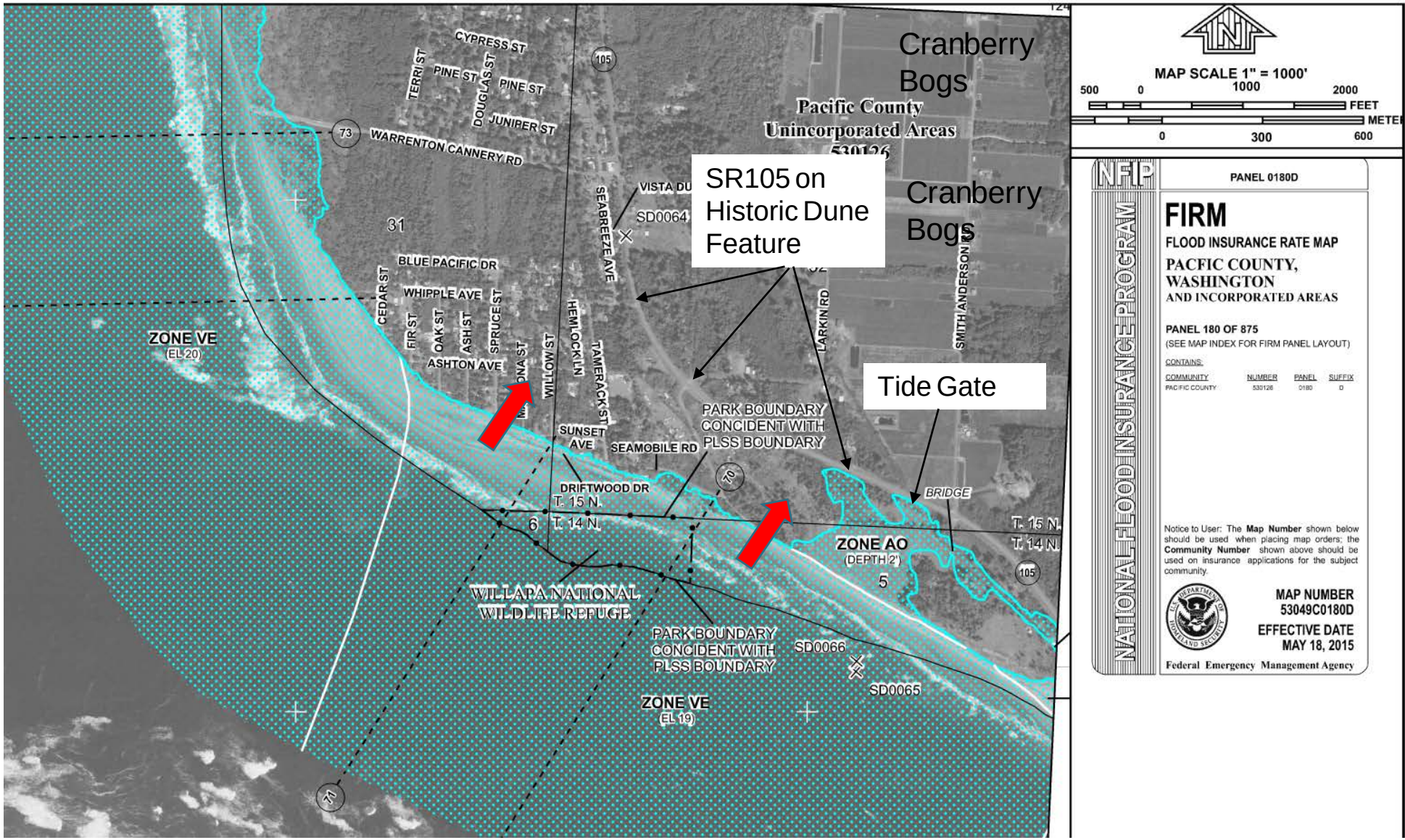
Future Shoreline Change (1985 to 2018)

- Recommendation:
  - Need to periodically update these projections with new information
  - Need to update this study to cover the entire study area
  - Update County Hazard Mitigation Plan to reflect long term erosion and flooding hazard



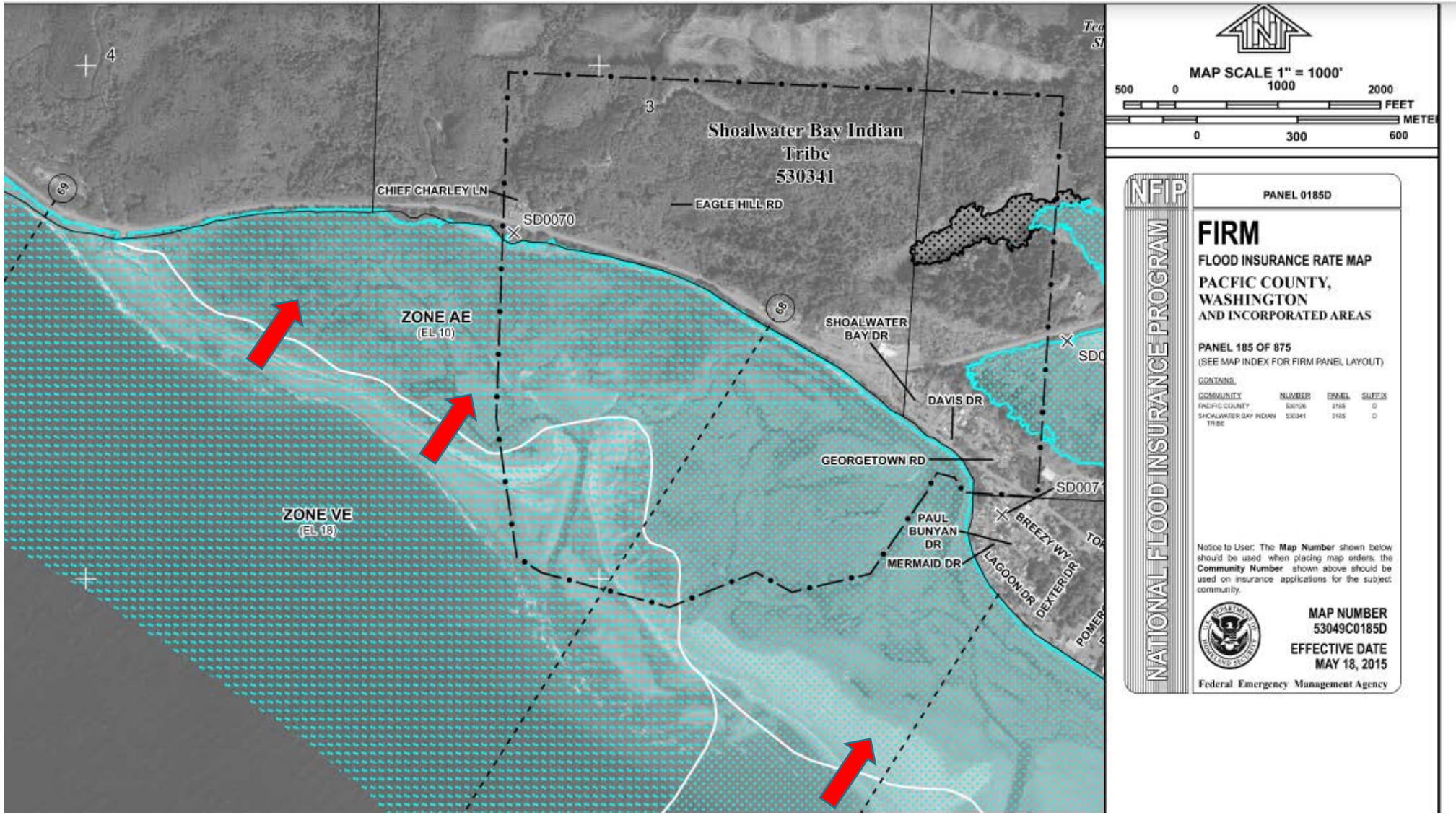
Flooding Risks Associated with Erosion

- AO zone is a lower elevation area subject to overtopping & Sheet flow; Area of impact will increase further endangering functionality of the tide gate to protect area north of SR105
- As erosion progresses, the VE zone will propagate landward resulting in greater impact to infrastructure and habitat



Flooding Risks Associated with Erosion

- As erosion progresses, the VE zone will propagate landward resulting in greater impact to infrastructure and habitat



Exposure – Flooding Hazards & Risks

Agricultural lands are in low-lying areas exposed to extensive flooding if the tide gate is damaged

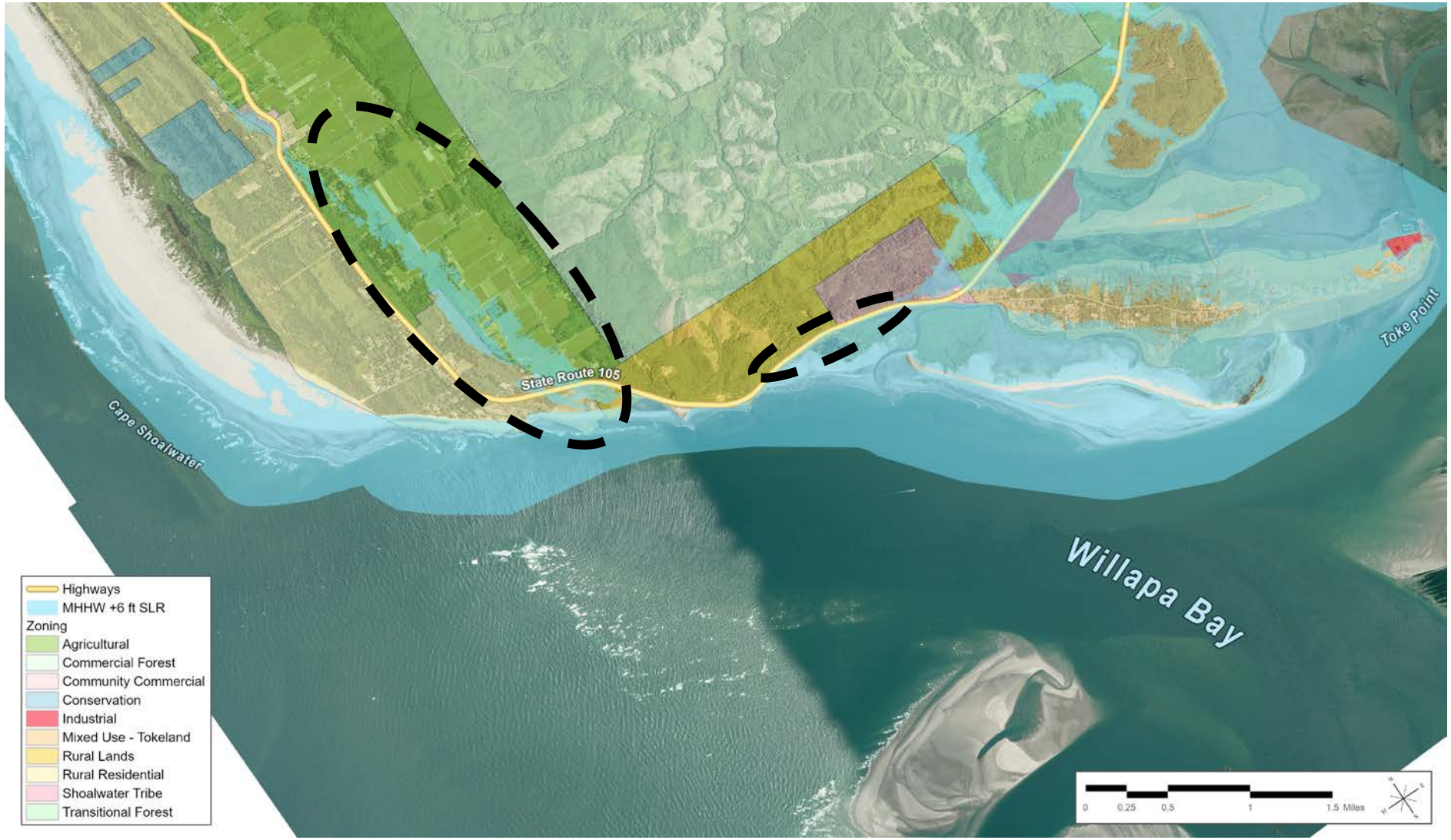
Working on a graphic that will help showcase the vulnerability and risks

West & Central Areas have combination erosion and flooding risks w/linkages

Infrastructure & Property uses vulnerable to inundation

Outline additional analysis needed; hydrologic flooding with storm tides w/ SLR & Climate Change Considerations

Develop a graphic that outlines these combination of hazards



Vulnerability – Cranberry Bogs, Water Systems

Pacific County Drainage District #1
Cranberry Farming.

- Footprint of ~ 1136 acres of cranberry farms and homes. 4 mile long by 0.5 miles long.
- ~ 70 family farms with ~6 $million in gross sales returns/yr.
- ~ 60 % of the cranberry acres in Washington, and 75 % of those grown in the Grayland area.

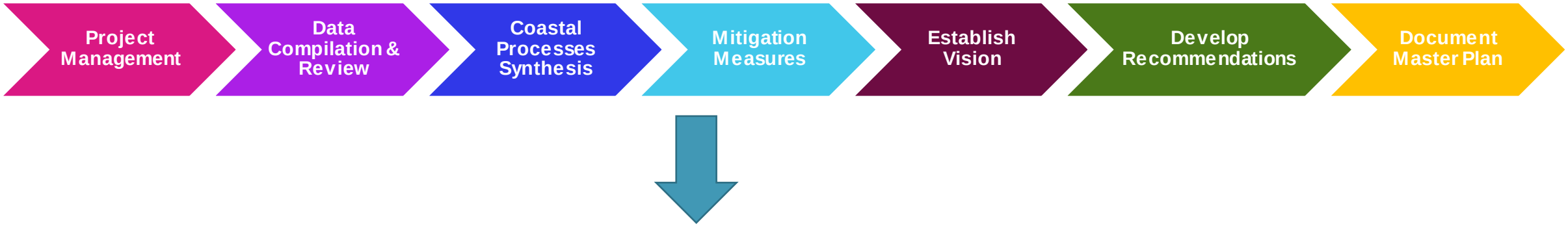
Risks

- Saltwater intrusion from a tide gate failure would permanently render these farm unusable for the cranberry farming for the next decade.
- Once the salt had leached out and they became farmable it would take > $ 50 million to renovate, replant and restore them to their present farm value.

Coastal Processes – Data/Analysis Needs

- **Recommendations or Next Steps**
- Data Collection & Monitoring
  - Field data collection of nearshore waves to characterize waves approaching the shoreline
  - Periodic monitoring of main entrance channel by conducting hydrographic surveys; monitoring of ebb shoals
  - Periodic monitoring of shoreline response to storms and seasonal variation
  - Align monitoring actions with regional universities to leverage available dollars
- Analysis
  - Shore Erosion. Develop projections for future shoreline change for the entire study area for the no action alterantive
  - Morphology. Conduct a Nearshore Coastal Morphology Analysis Research on longshore sediment transport and bypass around groin.
  - Morphology. Conduct a Tidal Channel Morphologic Analysis – using data collection and modeling, develop improved understanding of tidal hydrodynamics and offshore shoals to improve forecasting of future changes to the beach and to identify long term remedies.
  - Coastal Flooding. Inundation mapping for coastal flooding relative to SLR, Climate Change and Storm Surge under tide gate failure scenario.
  - Multi-hazard Assessment. Increased risk for future versus the past. Evaluation to assist in better refining the benefits of the mitigation actions relative to the combination of hazards and future maintenance needs.

Scope of Work



- Develop Matrix of Erosion Mitigation Options
- Develop Cost Estimates
- Develop Maintenance Requirements
- Develop Contingency measures
- Assess Impact of Mitigation measures on adjacent shoreline
- Review mitigation measures with stakeholders

Progress Update:

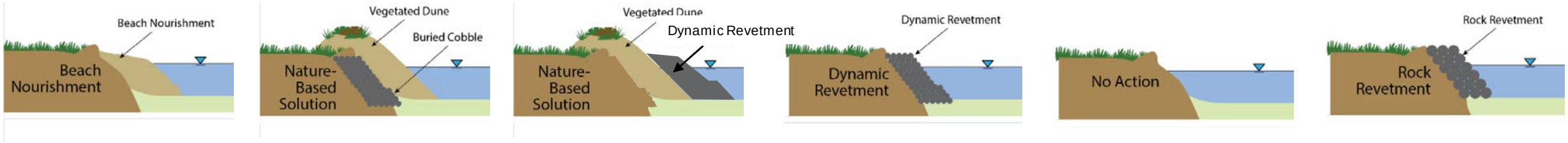
- Information provided by Stakeholders being Compiled

- Building on Demonstration Project

Erosion Mitigation Measures – Current/Planned

Green – Softer Techniques

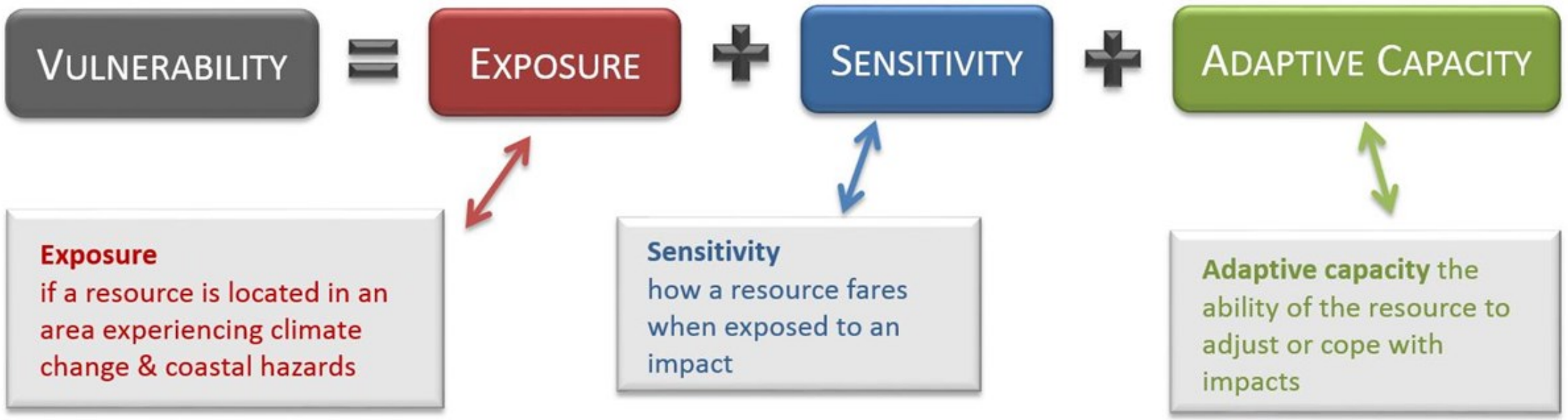
Gray – Harder Techniques



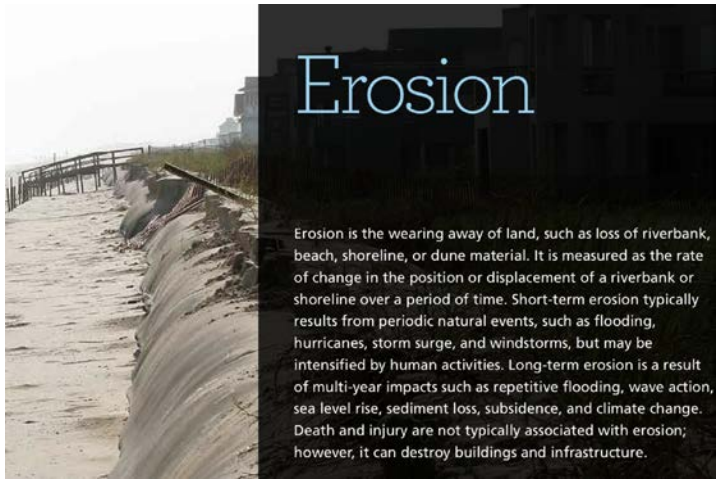
- For each Reach, need to evaluate the following for each measure:
  - Likelihood and Impact of Risk (Failure of Mitigation Measure)
  - Vulnerability against SLR
  - Maintenance Requirements
  - Adverse Impact on Natural Environment
  - Probable Opinion of Construction Cost
  - Mitigation Requirements to Secure Regulatory Permits

Selection of Green – Softer Techniques requires acknowledgement than more frequent monitoring/maintenance is likely to be needed.

Vulnerability Assessment



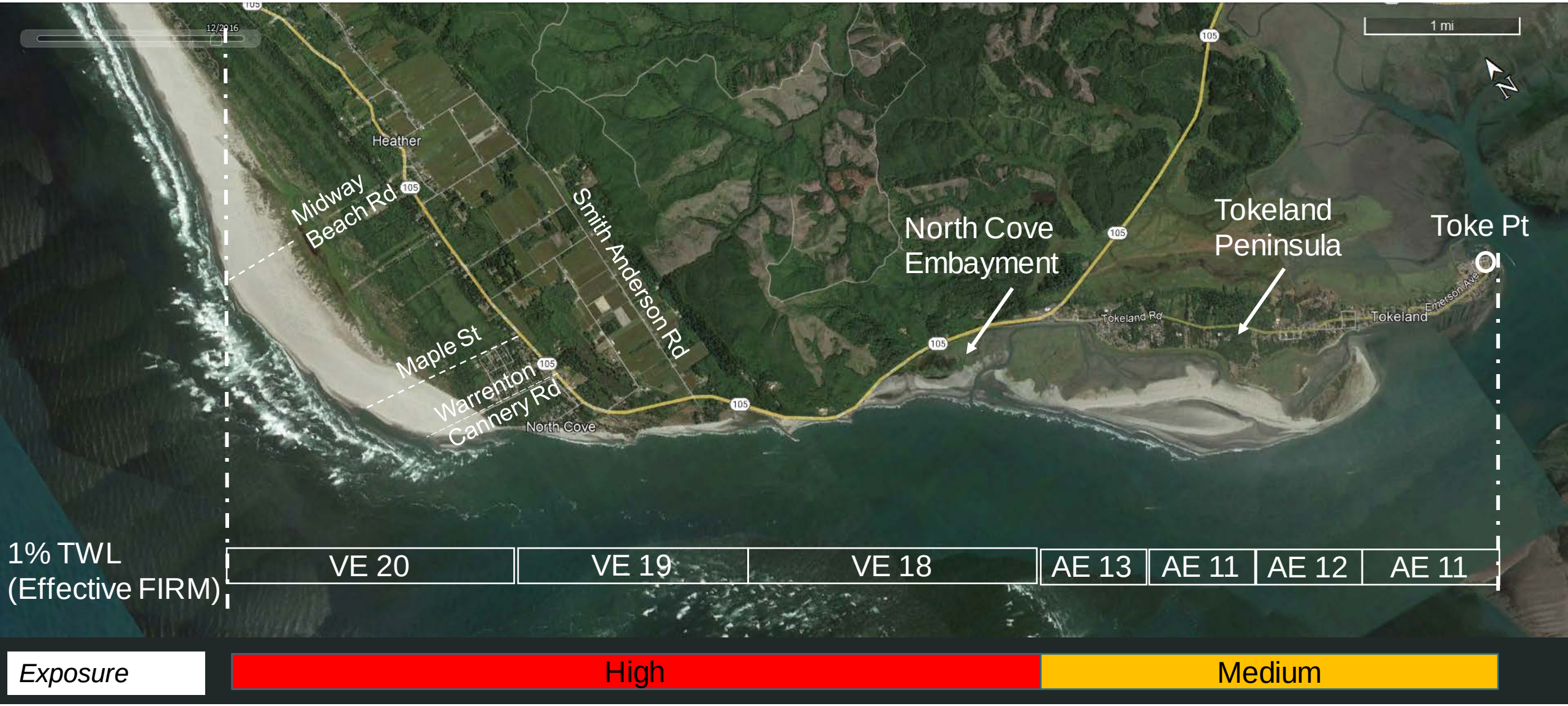
Natural Hazards



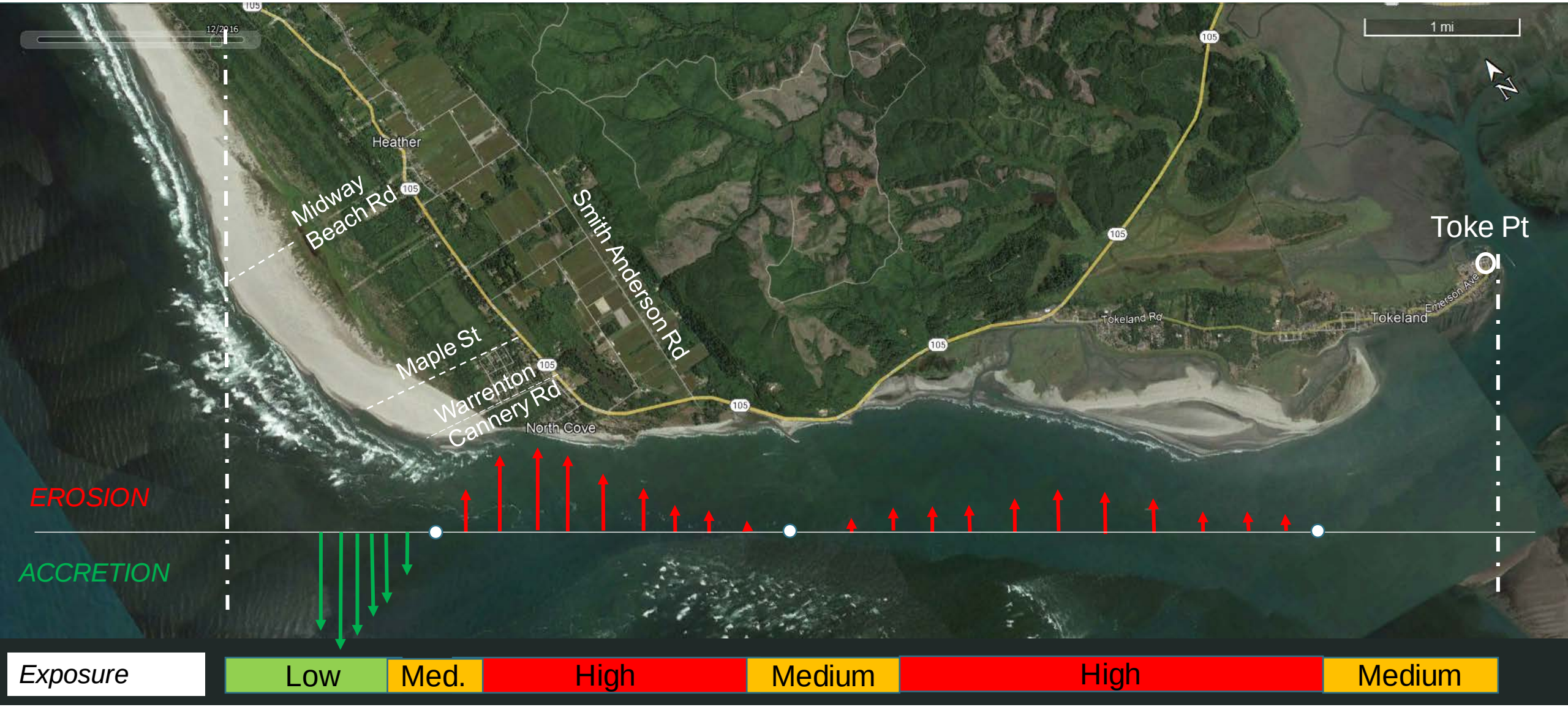
U.S. DEPARTMENT OF HOMELAND SECURITY

FEMA

Exposure to Coastal Flooding/Storm Surge



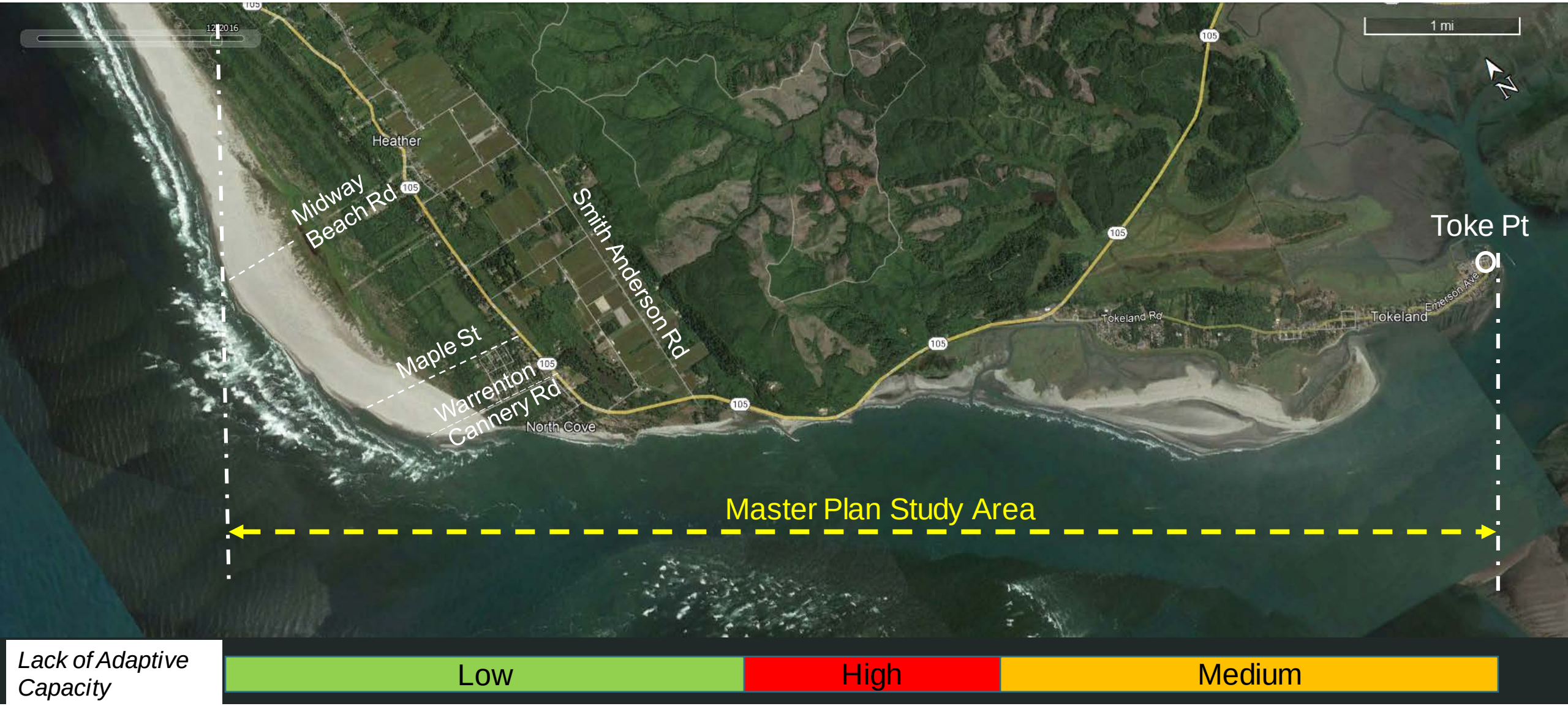
Exposure to Shoreline Erosion



Sensitivity

Sensitivity	Low	Med.	High	Medium

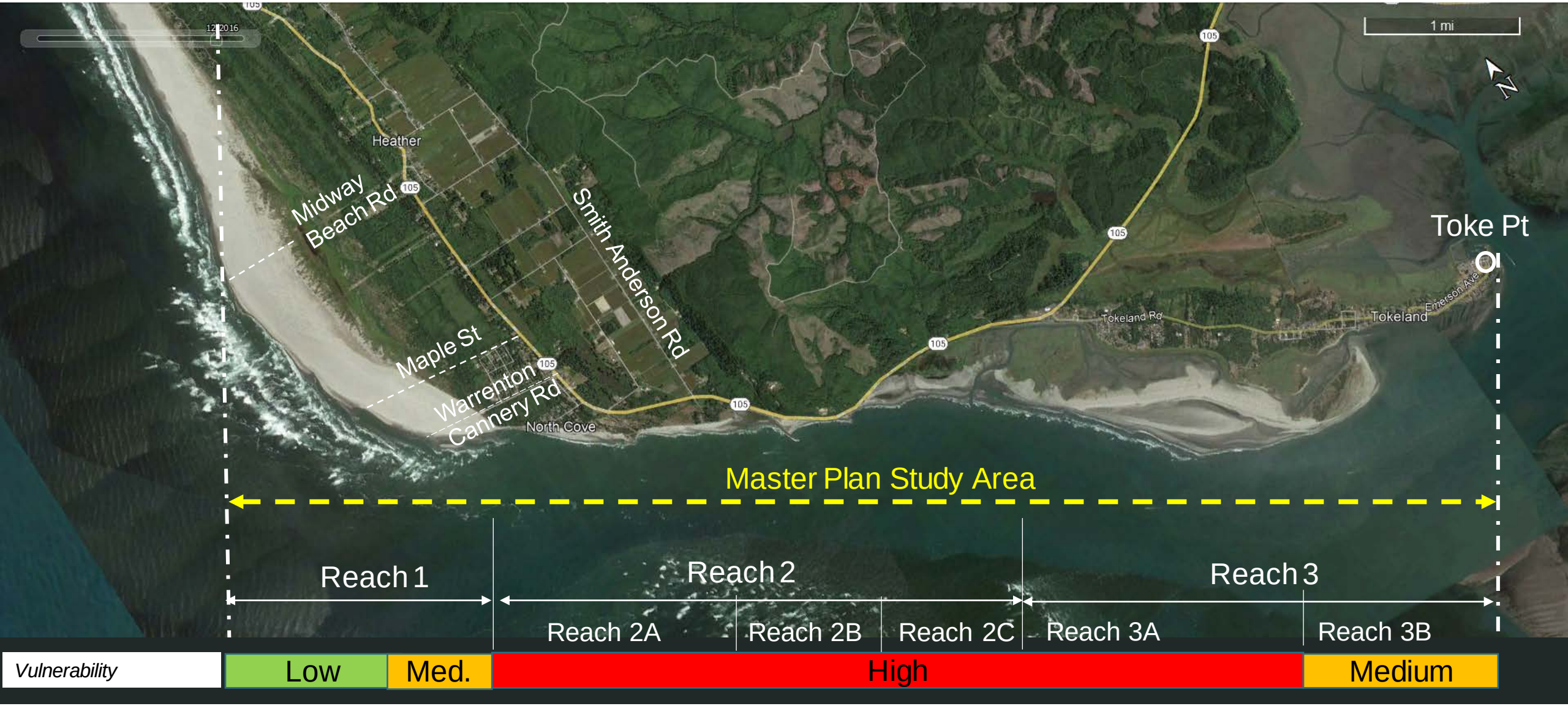
Lack of Adaptive Capacity



Vulnerability
= Exposure + Sensitivity + Adaptive Capacity

Exposure to Erosion	Low	Med.	High	Medium	High	Medium
Exposure to Flooding	High				Medium	
Sensitivity	Low	Med.	High		Medium	
Lack of Adaptive Capacity	Low			High	Medium	
Vulnerability	Low	Med.	High		Medium	

Reach Development

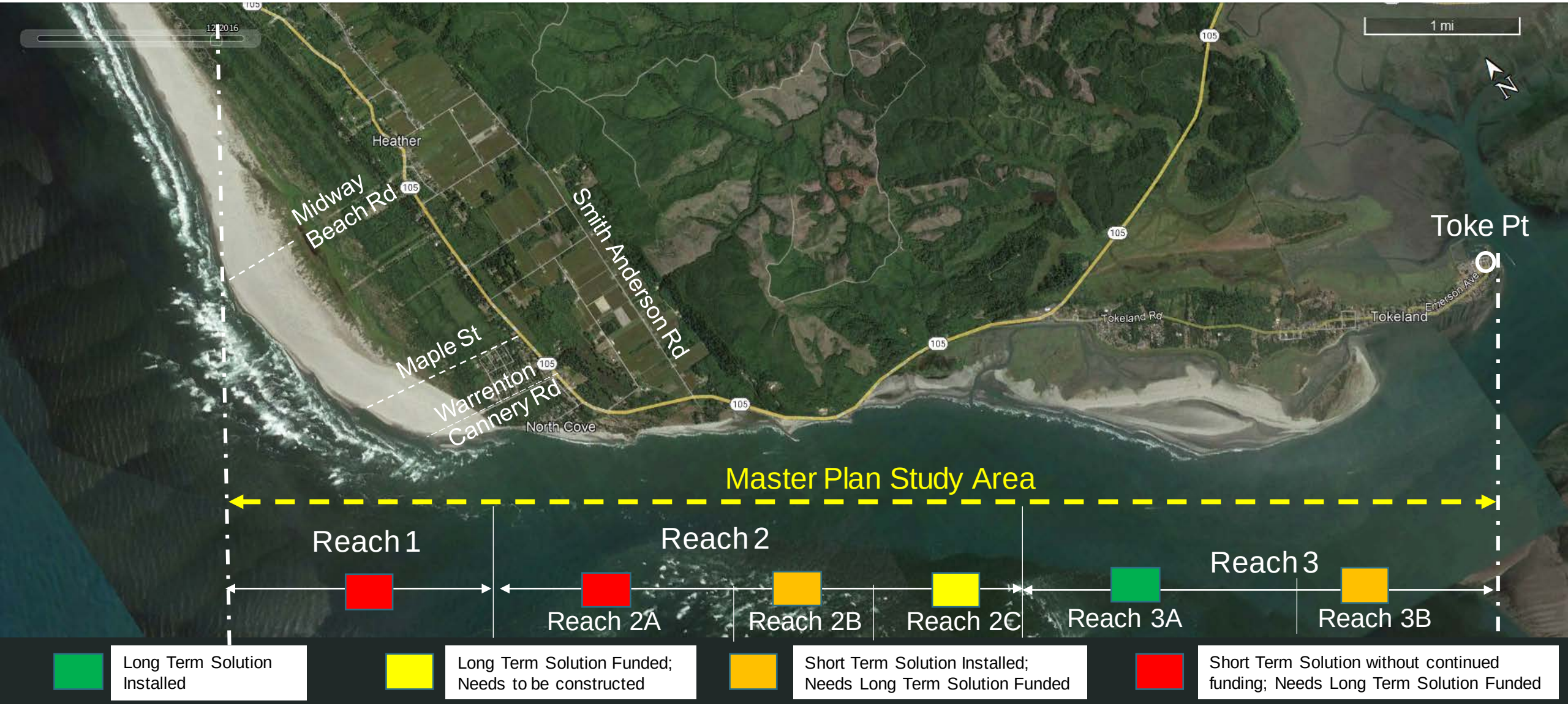


Existing Mitigation Plans by Reach

- Reach 1
  - Short Term – Dynamic Revetment
  - Long Term – TBD (outer channel movement)
- Reach 2A
  - Dynamic Revetment at existing shoreline
- Reach 2B
  - TBD; Depends on Location.
  - Peninsula – Dynamic Revetment
  - West of Groin (Ditch Outlet) and East of Groin (cable netting revetment) needs further development of a preferred alternative
- Reach 2C
  - Dynamic Revetment & Nature Based Design along outer shoreline
- Reach 3A
  - Nature Based Design w/ dynamic revetment
- Reach 3B
  - TBD

Input?
Will need concurrence on reaches and the current best available information on approach for erosion hazard reduction; build consensus. Upcoming meetings to discuss. What is needed to build consensus?

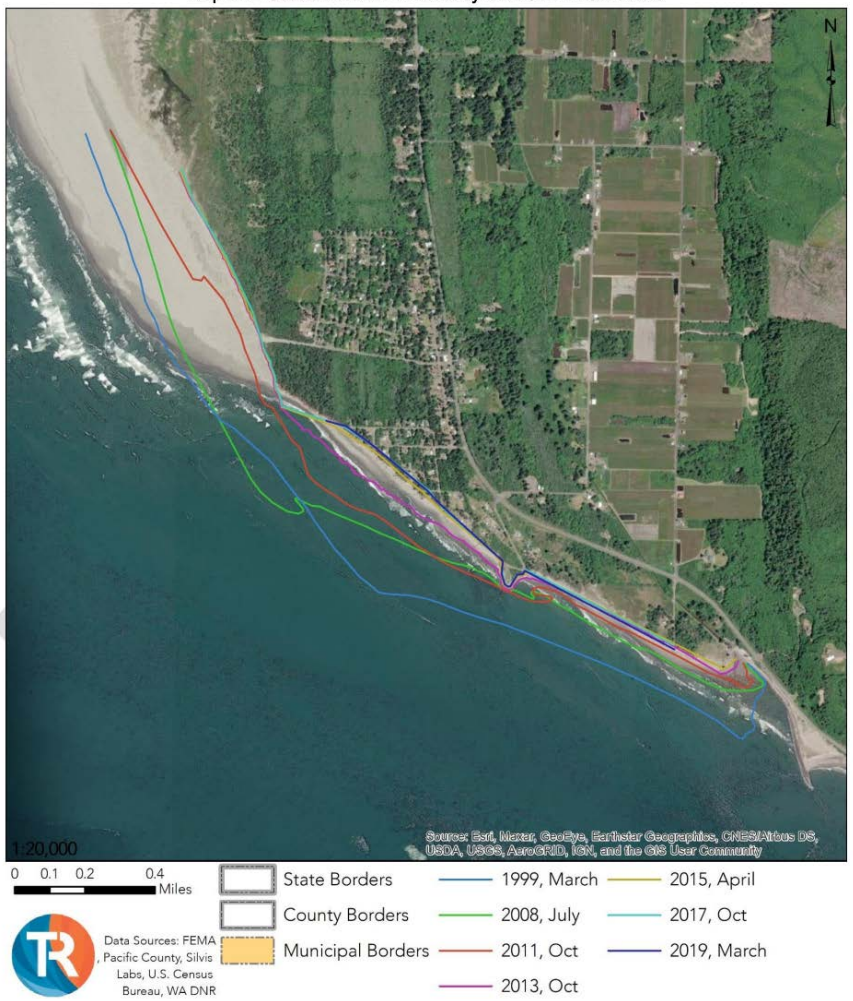
Planned Mitigation Measures



Pacific County Hazard Mitigation Plan Review Summary

3.3 Coastal Erosion Factors, Location, and Extent

Map 3.1 – Coastal Erosion – Washaway Beach/North Cove Area



Summary & Recommendations

- Shoreline map may understate hazards due to lack of projected future shoreline position
  - Recent shoreline change includes efforts to mitigate erosion on a short-term basis
  - Erosion rates vary across shoreline and may be much higher in specific areas with greater risk or hazard to community assets (such as in front of the tide gate area)
- Update erosion estimates relative to WA DOE projections
- Include sea level rise or climate change as a factor contributing to coastal erosion

3.3 Coastal Erosion Vulnerability

- Facilities
  - "Houses and other structures within these identified areas are at risk for being completely lost to the Pacific Ocean. When erosion has eroded the shoreline to the structure, it will be swept away and considered a total loss."
- Population
  - "Due to the slow working nature of erosion, it is not reasonable that the planning area's populations would be vulnerable to death or injury from coastal erosion."
- Systems
  - "If its shoreline continues to erode at its current rate, Pacific County could be left with a significantly decreased population and decreased tourism."
- Key Considerations
  - "None of the non-municipal stakeholders are at any immediate risk to coastal erosion. However, there is a long-term risk, especially for the ports and the South Beach Regional Fire Authority."

Summary & Recommendations

- Include vulnerability discussion for additional infrastructure beyond houses
  - Highways, local roadways
  - Agricultural areas
  - Habitat areas
- Include discussion of tide gate and role in protecting landward areas
- Revise description of erosion as "slow working"
  - Significant erosion events can result in rapid loss of large chunks of the shoreline
- Include potential vulnerability of non-municipal stakeholders such as Diking District
- Include potential vulnerability of Tribal assets

Mitigation Measures – Next Steps

Recommendations

- Consider renaming the “dynamic revetment” to better align with federal agency guidelines
- Surveying Dynamic Revetment – Better refine long term maintenance requirements
- Develop engineering design guidelines for “dynamic revetments”
- Update Hazard Mitigation Plan at time of next renewal to reflect master plan elements
- Conduct additional monitoring, analysis and design to develop preferred mitigation action for **Reach 2B**
- Multi-hazard Designation w/ corresponding mitigation action
- Develop a priority list for mitigation action funding and relate back to vulnerability
- Develop ability to mitigate risk outside of typical jurisdictional boundaries or definitions – make the case
- Capital vs Maintenance Actions – Greater reliance on reliable maintenance funding for nature-based solutions

Master Plan To Do List

- Long Term Monitoring & Maintenance Strategy – TBD
- Graphic Explaining Dynamic Revetment relative to Nature Based Solution - TBD

Establish a Vision

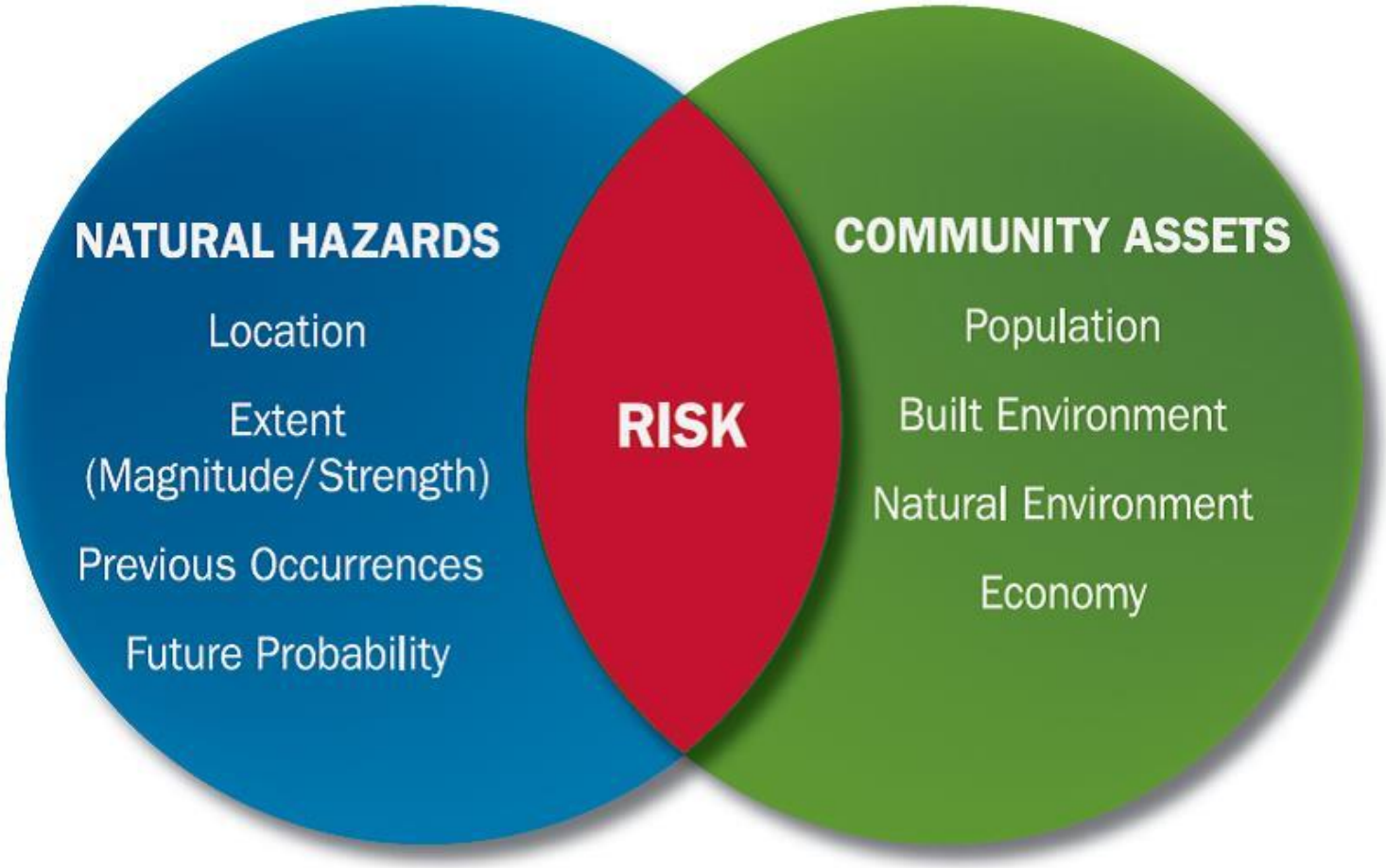
Scope of Work

- Develop Draft Vision for Master Plan – Consensus Building for System wide solution – linkages for funding
- Review with stakeholders

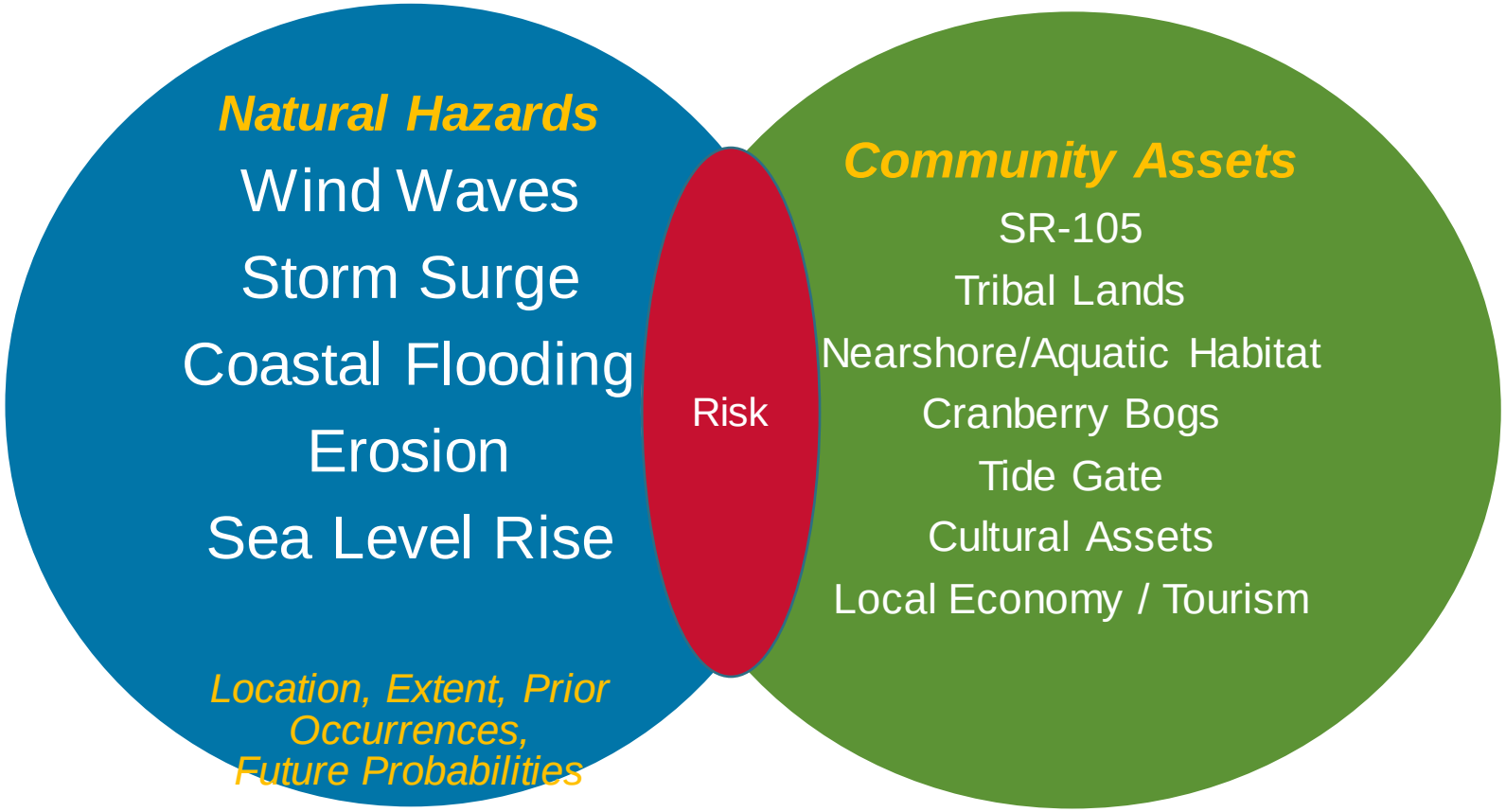
Progress Update:

- Continued Dialogue with Stakeholders; assists with developing vision and outcomes
- Identifying shared values/desires

Hazard Mitigation Planning



Hazard Mitigation Planning for North Willapa



Terminology pertaining to North Cove vicinity conditions for future funding pursuits

Community Assets

Assets
- Population
- Built Environment
- Natural Environment
- Economy

Community Lifelines

- A lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security.
- Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function
- Lifelines are the integrated network of assets, services, and capabilities that are used day-today to support the recurring needs of the community
- When disrupted, decisive intervention (e.g., rapid service re-establishment or employment of contingency response solutions) is required to stabilize the incident

Community Lifeline Components

Community Lifeline Components

Multiple components and subcomponents establish the parameters of the lifeline; component-level assessment is required to determine the condition of each lifeline.

1. Safety and Security
- Law Enforcement/Security
- Fire Service
- Search and Rescue
- Government Service
- Community Safety

2. Food, Water, Shelter
- Food
- Water
- Shelter
- Agriculture

3. Health and Medical
- Medical Care
- Public Health
- Patient Movement
- Medical Supply Chain
- Fatality Management

4. Energy
- Power Grid
- Fuel

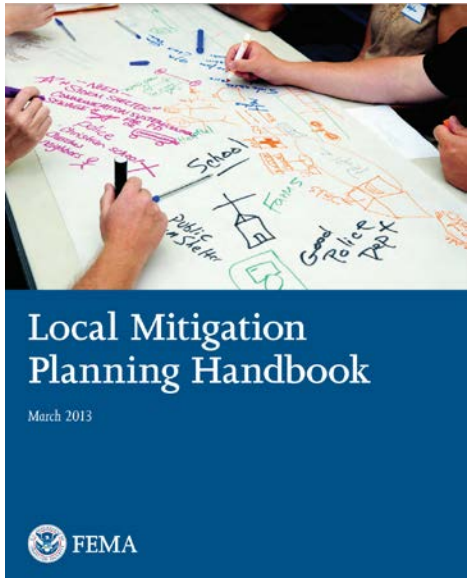
5. Communications
- Infrastructure
- Responder Communications
- Alerts, Warnings, and Messages
- Finance
- 911 and Dispatch

6. Transportation
- Highway/Roadway/Motor Vehicle
- Mass Transit
- Railway
- Aviation
- Maritime

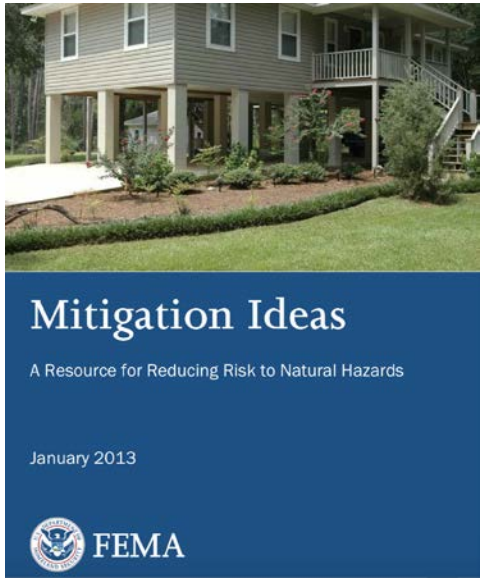
7. Hazardous Material
- Facilities
- HAZMAT, Pollutants, Contaminants

ASSESSMENT	
Status	***"What?"***
Impact	***"So What?"***
Actions	***"Now What?"***
Limiting Factors	***"What's the Gap?"***
ETA to Green	***"When?"***

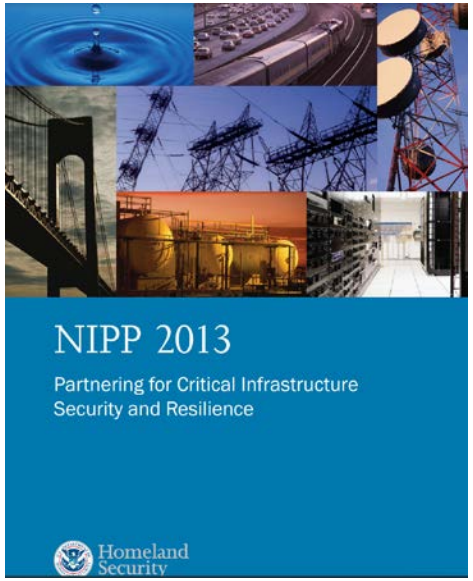
Strategies - FEMA Resources



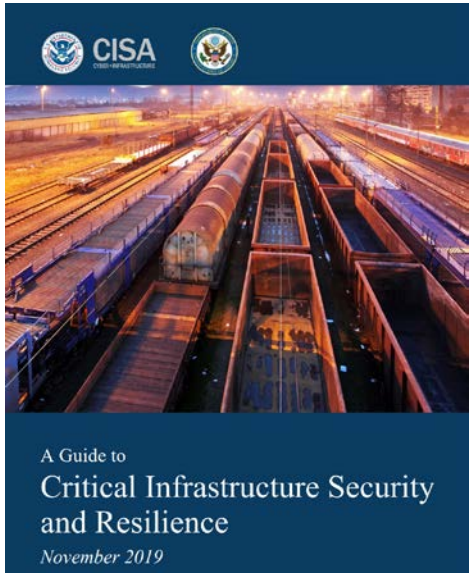
- Multi-Jurisdictional Plan: County, WSDOT, Tribe, Drainage District, USACE
- Memorandum of Understanding
- Community Assets at Risk: People, Economy, Built Environment, Natural Environment



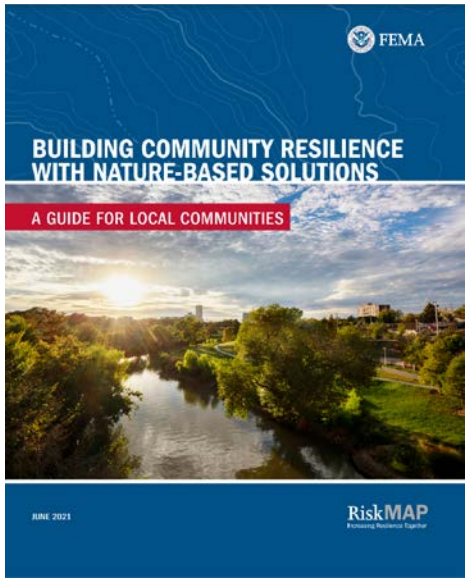
- Nature Based Systems Design - Dynamic Revetment
- Funding Strategy
- Hazard Assessments
- Community



- Dependencies – Tide Gate dependent on protection by berm, SR105, Tribal Lands and habitat dependent on protection by berm



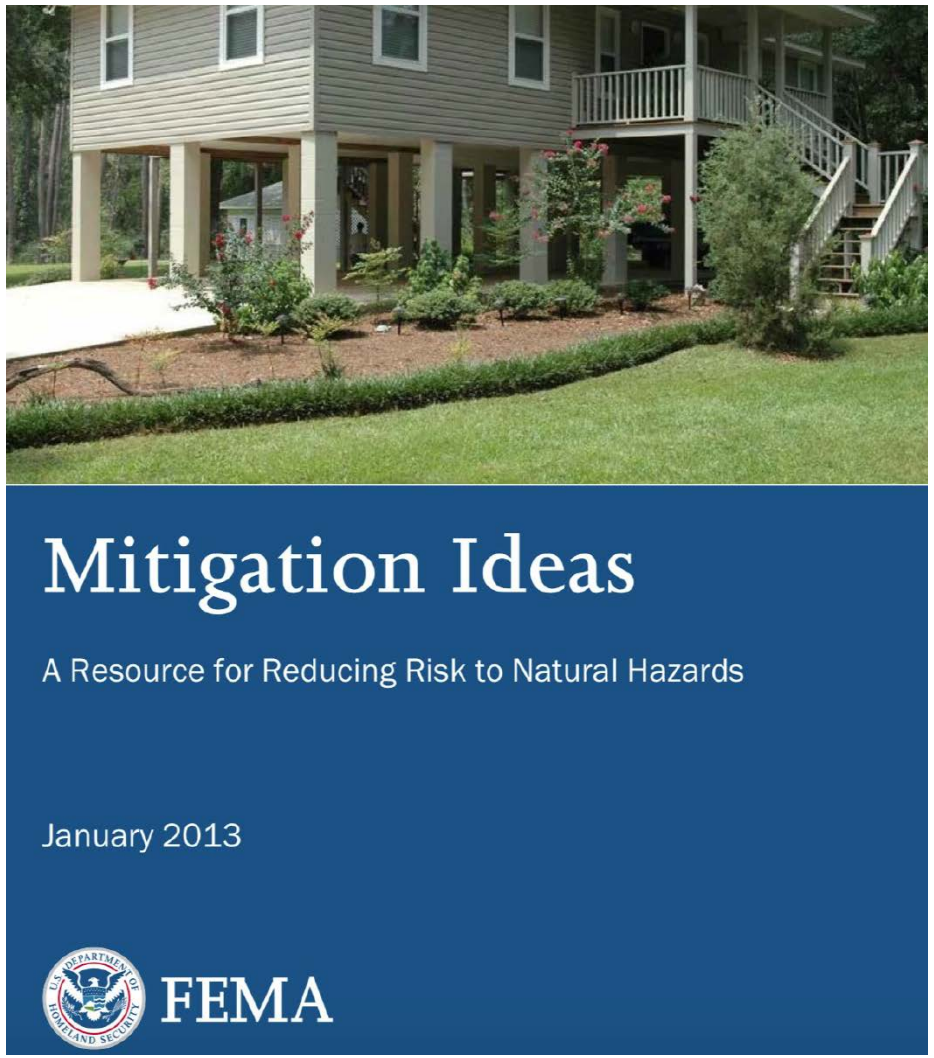
- Transportation - SR105
- Flood Protection - Drainage District Tide Gate
- Flood & Habitat Protection - Graveyard Spit barrier beach to reduce flooding



- Focuses on Nature-Based Solutions

Mitigation Ideas

- FEMA mitigation ideas can be utilized within Willapa North Cove Erosion Master Plan
- Need for Pacific County Hazard Mitigation Plan to be aligned with Erosion Master Plan
  - Key to secure FEMA funding
  - Connect the hazards to the mitigation ideas relative to FEMA guidance



Mitigation Strategy

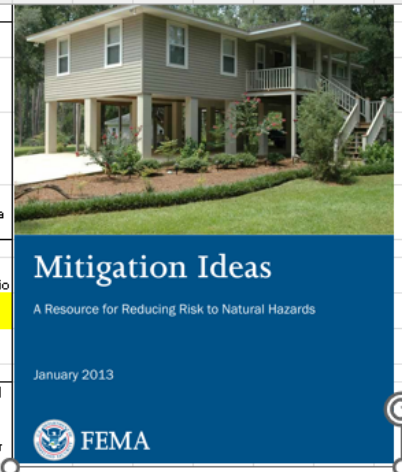
Goal: Develop sustainable, long term erosion protection for North Cove Shoreline, reduce risk of impact and loss to critical infrastructure and reduce risk of increased flooding to nearby low-lying coastal lands.

Potential Action Plan Categories:

- Local Planning & Regulations
- Structure & Infrastructure Projects
- Natural Systems Protection
- Education & Awareness

Mitigation Type	
Local Plans and Regulations	• Erosion & Flood Mapping • Local Funding Mechanisms • Form Partnerships – MOU, etc… • Monitoring of hazards and mitigation work • Multijurisdictional plan
Structure and Infrastructure Projects	• Conduct Maintenance for erosion and flood protection • Protect Natural Resource Buffers • Protection Infrastructure • Protect & Restore Natural Flood Mitigation Features
Natural Systems Protection	• Shoreline Erosion Hazard Areas: Dynamic Revetment, Beach Nourishment, LWD
Education and Awareness Programs	• Increase Awareness of erosion hazards – Coordinator position for WECAN

Natural Hazard	pplicable Project Reac	FEMA Mitigation Technique #	FEMA Mitigation Category	FEMA Mitigation Technique Description	Commentary
Erosion	All reaches	ER-1: Map & Assess Vulnerability to Ero	Local Planning & Regulations	Monitoring Surveys, Coastal Proceses Analysis, GIS mapping	Mapping projection of erosion hazards for entire reach of project area. Analysis of tidal channel migration
	All reaches	ER-2: Manage Development in Erosion Hazard Areas	Local Planning & Regulations	Developing an Erosion protection program for high hazard areas	and design work; advance into a comprehensive erosion protection plan for funding with Memorandum of Understanding
	2A, 2C, 3	ER-5: Shoreline Erosion Hazard Areas	Natural Systems Protection	Preventing erosion with bank stabilization, vegetation enhancement, rock. Using a hybrid of hard/soft engineering techniques such as low profile rock, wood, vegetative plantings.	Implementation of dynamic revetment
	All reaches	ER-6: Increase Awareness of Erosion Hazards	Education & Awareness	Providing online information to residents and stakeholders; developing a brochure describing the risks and potential mitigation techniques	Pursue funding for a partial staff position to ensure continuity of WECAN for public awareness, sharing of data and information and pursuit of funding
Storm Surge		SS-4: Map & Assess Vulnerability to Storm Surge	Local Planning & Regulations	Coastal Storm Surge, SLR and Hydrologic Analysis to evaluate flood elevations within	Grayland & Cranberry Bogs under tide gate failure scenerio
		SS-5: Construct Structural Control Techniques	Structure & Infrastructure Project	Build Coastal Berm to protect abosorb waves and protect shoreline from erosion	
		SS-6: Protect Infrastruture & Critical Facilities	Structure & Infrastructure Project	Constructing shore protection systems; nature based systems	Implementation of dynamic revetment
Flooding	All reaches	F-2: Form Partnerships to Support Floodplaing Management	Local Planning & Regulations	Partnerships between local, state, regional and federal agencies. Erosion Monitoring Committee, Erosion Mitigation Committee within WECAN.	Continuation of prior WECAN success but need additional funding to have a facilitator, monitoring, coordinator and doer to continue the efforts into the future. Develop a Memorandum of Understanding within the partnerships for pursuit of funding and implementaton of construction, for monitoring and other hazard mitigation needs.
		F-7: Improve Flood Risk Assessment	Local Planning & Regulations	shoreline erosion; develop GIS mapping for flood prone and risk areas for future scenerios resulting from shoreline erosion; develop and maintain a database to track community risk to flooding and mitigation measures being implemented.	Continue efforts of WECAN; fund flood mapping work for loss of protective berm, tide gate and SR105. Funding for part time position to help facilitate WECAN.
	All reaches	F-11: Establish Local Funding Mechansims for Flood Mitigation	Local Planning & Regulations	Using taxes or fees to help support match money or monitoring work and help finance future maintenance or projects constructed under grants or legislative appropriations	federal dollars for capital construction and to assist with long term monitoring and maintenance work. Develop a MOU with partnership and a lead erosion program coordinator. **Applicable to Flooding, Erosion, SLR, Storm Surge Categories.**
	2B: Drainage Ditch Area	F-14: Conduct Regular Maintenance for Drainage Systems & Flood Control Structures	Structure & Infrastructure	Cleaning of outlet ditch of LWD and sediment, building and maintaining a groin/spit feature at the mouth of the ditch, monitoring of outlet ditch during storm season, providing bank stabilization with LWD to reduce widening of the outlet channel	Project to further evaluate and implement a shoreline feature in reach 2B to protect the ditch from erosion, assist with low tide berm sand accumulate and assist with passing long shore sediment transport accross the ditch outlet and accross the Rock Groin. Construct LWD features along shoreline and ditch to provide protection of the tide gates from storm tide impacts
		F-17: Protect Infrastructure.	Structure & Infrastructure	Mitigation techniques to implement for minimizing losses from flooding include: stabilization and armoring of embankments. Using bioengineered and nature based solutions.	Dynamic revetment to help protect berm and land protecting SR105, habitat, and tide gates to reduce impact from flooding.
		F-20: Protect & Restore Natural Flood Mitigation Features	Structure & Infrastructure	protecing existing beach berm and sand dunes that are natural barriers to flooding, storm surge and SLR.	Dynamic revetment to help protect berm and land protecting SR105, habitat, and tide gates to reduce impact from flooding.
Sea Level Rise		SR-1: Map & Assess Vulnerability to SLR	Local Planning & Regulations	Modeling "what if" scenerios to estimate potential vulnerabilities in order to develop SLR mitigation priorities. Map hazard areas based on unmitigated shoreline erosion trends. Further develop inventoary of infrastructure effected (Roads, Water Wells, Utilities, etc..); evaluate climate change hydrologic considerations	If erosion is not mitigated, SLR hazard will increase as a result of new innundate areas due to loss of tide gate, loss of highway and loss of protective barrier berms.
		SR-6: Protect & Restore Natural Buffers	Structure & Infrastructure	Implementing natural systems such as beach nourishment, berms, plantings, and nature based solutions	shoreline creates a natural buffer to mitigate the effects of SLR. Ensures FEMA VE zone remains out along the bay and doesn't cause a shift from AE to VE zone on the interior spaces.
		SR-7: Increase Awareness of SLR	Education & Awareness	Educating citizens, conducting outreach, GIS hazard mapping.	cooperating partners to assist with education of community, stakeholders and others. Assist with monitoring, documenting and sharing information through online databases and website management
Multiple Hazards	All reaches	MU-: Create Local Funding Mechanisms for Hazard Mitigation	Local Planning & Regulations	Establish a local reserve fund for public mitigation measures. Use impact fees to help fund public hazard mitigation projects. Providing match to federal funds that can assist with public and private mitigation work	Develop a local funding program to help leverage state, federal dollars for capital construction and to assist with long term monitoring and maintenance work. Develop a MOU with partnership and a lead erosion program coordinator. **Applicable to Flooding, Erosion, SLR,**
	All reaches	MU-11: Monitor Mitigation Plan Implementation	Local Planning & Regulations	Monitoring the implementation of local mitigation plan and ensure mitigation actions are being completed and functioning; implement adaptive management where needed	Pursue funding for a partial staff position to ensure continuity of WECAN for public awareness, documentaiton and sharing of data and information, monitoring, adaptive management implementation, and pursuit of funding



Establishing a Vision – Summary & Next Steps

- Make linkages between the hazards that expose people, infrastructure, environment and economy at risk
  - Elaborate on multi-hazards along the North Willapa shoreline (not just shoreline erosion)

- Continue collaboration and sharing resources/services that can be beneficial for project partners
  - Seek/support funding for Dept. of Ecology to provide periodic monitoring services for entire study area
  - Secure funding for one of the partners to take the lead in establishing a partial paid position to support coordination, management of information, grant funding, maintenance actions – ensures continuity and proactive management upon implementation of capital projects
  - Outline critical resources for use on mitigation actions – cobble, gravel, sand, LWD that is available through other public works actions in the region; designate a location for receiving and stockpiling.

- Update's County's Hazard Mitigation Plan to Align with existing risks and shoreline conditions

- Consider local funding options to provide match and assist with long-term maintenance, monitoring

Scope of Work

- Develop Recommendations for Research
- Recommendations for stakeholder review
- Outline funding pathways

Progress Update:

- Recommendations developed for each section will be compiled into short-, medium-, and long-term

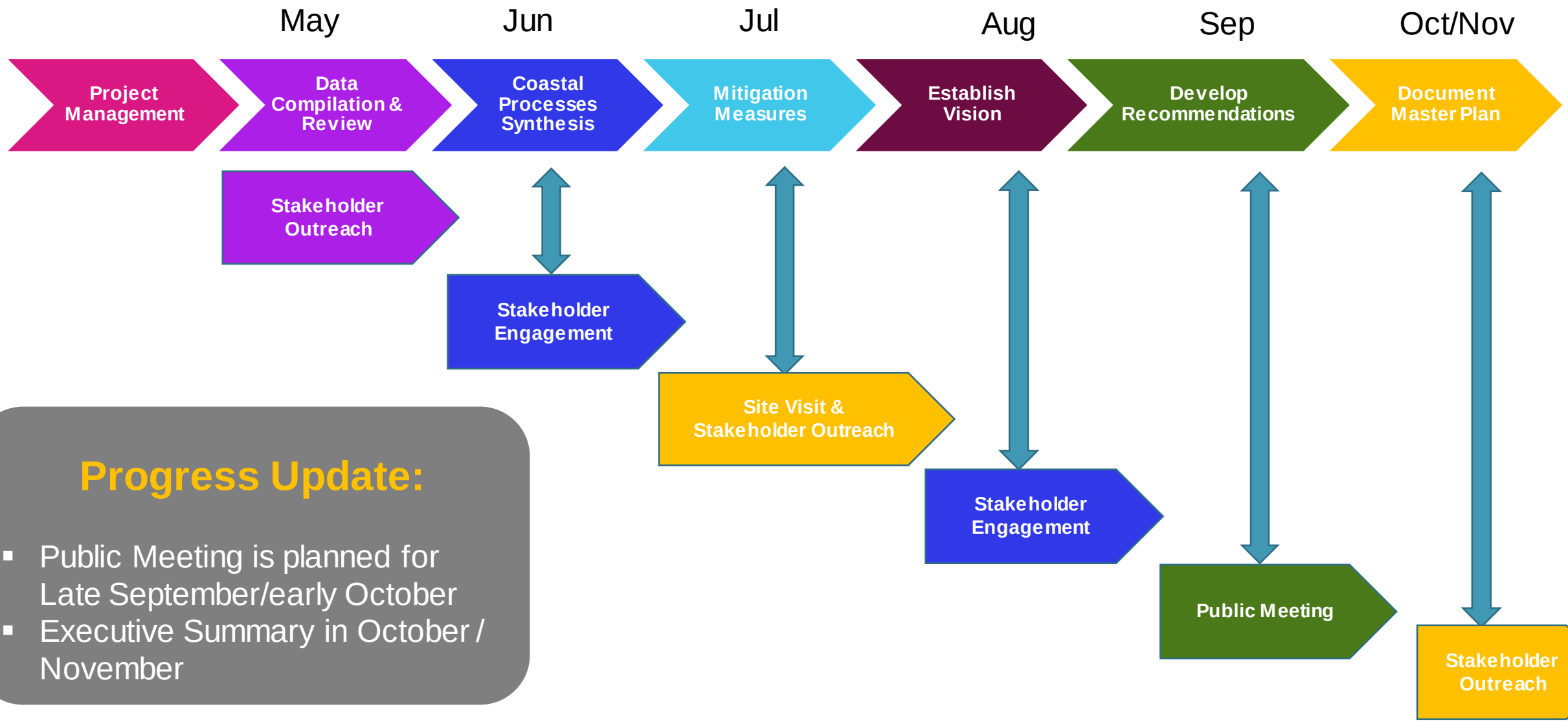
Scope of Work

Progress Update:

- Keeping end–goal in mind

- Executive Summary
- Introduction
- Project Needs, Goals, and Criteria
- North Willapa History, Coastal Processes Setting & Erosion Protection Plans Summary
- Stakeholder & Public Outreach Results
- Master Plan Recommendations
- Master Plan Implementation Strategy
- Cost Estimation & Benefits
- Appendices

Schedule for Implementation



Progress Update:

- Public Meeting is planned for Late September/early October
- Executive Summary in October / November

Action Items (To be Determined)

- Consultant Team to send out the meeting material within two weeks from the kickoff meeting
- Consultant Team to continue reaching out to critical stakeholders to seek input on material shared with the group
- Consultant Team to schedule a public meeting (in person) for late September
- ….

moffatt & nichol

Thank you

Primary Points of Contact:

Pacific County:

- Paul Plakinger pplakinger@co.pacific.wa.us 360-875-9334

Moffatt & Nichol:

- Shane Phillips sphillips@moffattnichol.com 206-501-2317
- Younes Nouri ynouri@moffattnichol.com 206-501-2320

moffatt & nichol

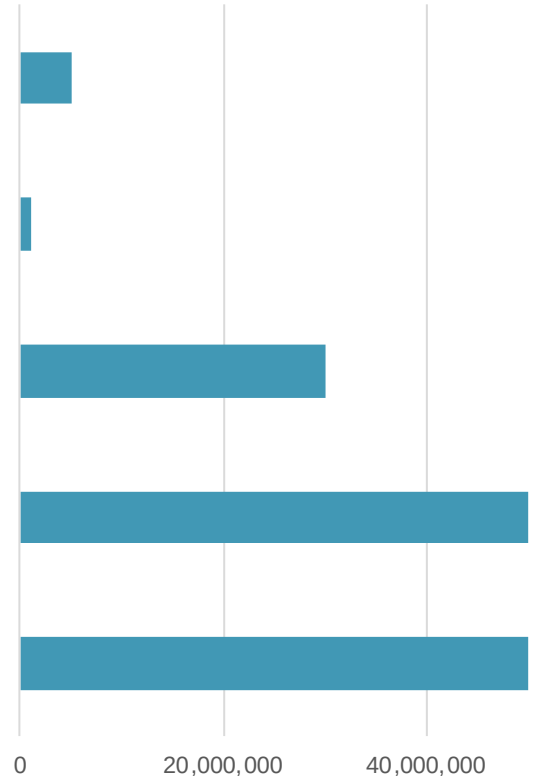
Appendix A Funding Opportunities

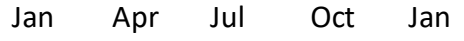
Funding Sources Previously Awarded to Project Area

Grant Agency	Program Name	Purpose	Awardee
➢ FEMA	Flood Mitigation Assistance Grants	2022 – 2023 Master Plan	Pacific County
➢ FEMA	Pre-Disaster Mitigation Program (Replaced with BRIC)	2020-2025 Shoalwater Bay Tribe Hazard Mitigation Master Plan	Shoalwater Bay Tribe
➢ IIJA	CAP Section 103 Program	Feasibility Study	Shoalwater Bay Tribe and Pacific County
➢ Pacific Conservation District	Emergency Repair	2017 – 2018 Emergency Repair	Drainage District
➢ Washington State Conservation Commission Shellfish Program	Demonstration Project	2018 – 2019 Demonstration Project	Pacific County

Grant Funding Opportunities – State or Tribe is the Lead Applicant

Grant Agency	Grant Funding	Available Award Amount	Match	Purpose	Application Due On
NOAA/NFWF	America the Beautiful Challenge		90% Federal/10% Non-Federal	Planning, Construction, Acquisition, Design	
FEMA	Cooperating Technical Partners Program		No match required	Flood Mapping	
FEMA	Flood Mitigation Assistance		75-90% Federal/25-10% Non-Federal	Planning, Construction, Acquisition, Relocation	
FEMA	Building Resilient Infrastructure Communities		75-90% Federal/25-10% Non-Federal	Planning, Construction	
FEMA	Hazard Mitigation Grant Program		90% Federal/10% Non-Federal	Planning, Construction, Acquisition	



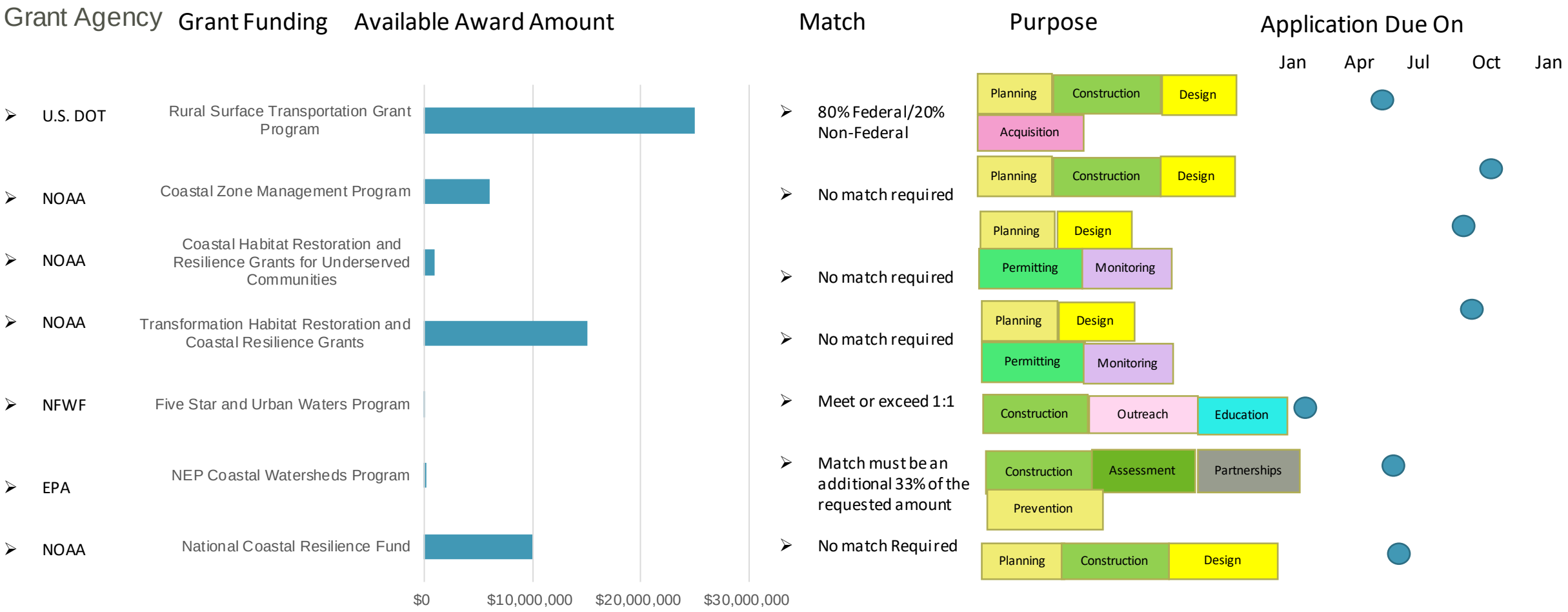


1 Hazard Mitigation Grant Funding awards are based on a percentage depending on estimated total or aggregate cost of disaster assistance. The are awarded after each Presidential Declaration of a major disaster

2 Building Resilient Infrastructure Communities national competition cap is up to $50 million per subapplication

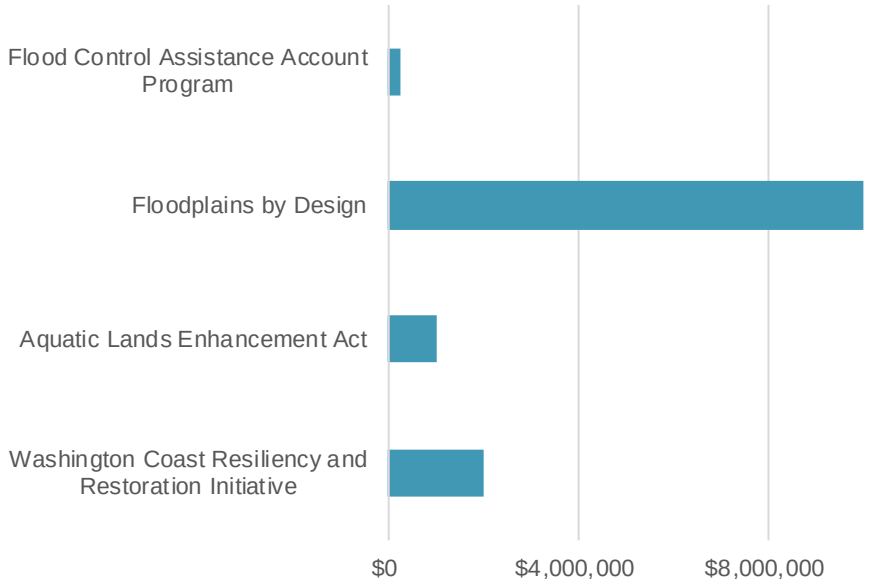
3 Flood Mitigation Assistance Grants and America the Beautiful Challenge Grants range per type of application and can be less than $ 1 million for certain types of grants

Grant Funding Opportunities – More Federal Grants



1 State Coastal Zone Management Programs are the applicant for those grants, funding can go to subgrantees
2 NOAA may choose to combine FY 22 & FY 23 grant opportunities for Coastal Habitat Restoration and Resilience Grants for Underserved Communities and the Transformation Habitat Restoration and Coastal Resilience Grants. If this is the case, the next time they will be available is 2024

Grant Funding Opportunities – State Grants

Grant Agency	Grant Funding	Available Award Amount	Match	Purpose	Application Due On
➢ Ecology	Flood Control Assistance Account Program		➢ 75-80% State/20-25% Non-State	Planning, Construction	Jan, Apr, Jul, Oct, Jan
➢ Ecology	Floodplains by Design		➢ 100% State (for economically disadvantaged communities)	Construction, Acquisition	
➢ WARCO	Aquatic Lands Enhancement Act		➢ 80% State/20% Non-State	Construction, Acquisition	
➢ WARCO	Washington Coast Resiliency and Restoration Initiative		➢ No match requirement	Construction, Acquisition	

1 State grants are awarded on a biannual basis – all are 2024 except for the Flood Control Assistance Account program which is 2023

Infrastructure Investment and Jobs Act – NOFO Not Released Yet

Grant Agency	Program Name	Match	Purpose
➢ DOT	Promoting Resilient Operations for Transformative, Efficient and Cost-Saving Transportation (PROTECT)Grants – Discretionary Grants	➢ 80-100% Federal/20-0% Non Federal	Planning, Construction
➢ FEMA	Hazard Mitigation Revolving Loan Funds	➢ Revolving Loan Program ➢ More will be known about additional purposes for funding when the NOFO is released	Construction

1 PROTECT Formula Grants have been given to states and funding will be distributed for five years

Inflation Reduction Act – Pending Congressional Approval

Grant Agency	Program Name	Match	Purpose
➢ NOAA	Investing in Coastal Communities and Climate Resilience	➢ TBD	➢ Funding available for conservation, restoration and protection of coastal and marine habitats and resources to enable coastal communities to prepare for extreme storms and other changing climate conditions ➢ More information will be released as legislation moves forward and agencies develop NOFOs

U.S. Army Corps CAP Section 103 Program

Program Information	Match	Purpose
➢ In the Infrastructure Investment and Jobs Act a Feasibility Study for the North Cove Shoreline Protection Act was funded	➢ 100% federal up to $100,000 of award	Feasibility Study
➢ After feasibility study is complete phase 2 is design and construction	➢ Maximum federal cost is $10 million ➢ Cost share is 65% Federal/35% Non-Federal	Construction / Design

1 Coordinate timing of phase 2 with USACE

BIA Annual Awards for Climate Resilience

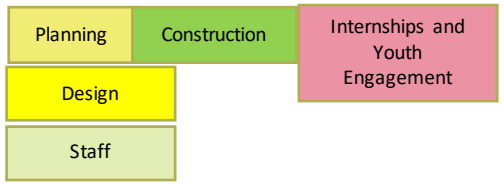
Program Information

- BIA provides 12 categories of funding for Tribes between $15,000 - $ 3 million per category
- Can apply for multiple categories
- Limited to two awards across categories whose maximum grant is $100,000

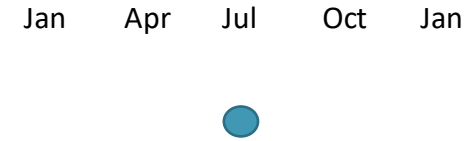
Match

- No match required

Purpose



Application Due On



Community Project Funding Request

Funding Source	Typical Award Amount	Match	Purpose	Application Due On
➢ Washington State Legislature	$200,000 - $1 million	➢ No match required	Design, Construction, Acquisition	Jan, Apr, Jul, Oct, Jan
➢ Federal Government	Varies based on request type	➢ Match required depends on which type of request	See Appendix A for funding award types per Appropriations Bill	