

Watershed Working Group (WWG)

March 1, 2022
Quarterly Meeting





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Watershed Working Group

Watershed Working Group (WWG) is a partnership between local and federal government agencies, environmental non-profits and other concerned groups which gathers to provide technical expertise and project support on watershed initiatives in the CNMI. The group typically meets every two months to discuss ongoing projects and request review or recommendations on specific issues.

Please check the [CRM calendar for the next WWG meeting](#). Please contact our Watershed Coordinator, Zachary Williams (zwilliams@dcrm.gov.mp) for any further information or to be added to the email list.

MEETING MATERIALS AND RESOURCES

Keep up to date with presentations, materials and other group updates! Open "Notes & Updates" for further details and links relevant to CNMI's watersheds.

August 3, 2021

- [August 3, 2021. Notes & Updates](#)
- **Presentations:** Zak Williams (DCRM Watershed Coordinator): Watershed Updates; Mary Fem Urena (DCRM Coastal Planner): Better Buildings Update;

<https://dcrm.gov.mp/our-programs/water-quality-and-watershed-management/watershed-working-group/>



The Watershed Working Group is a network of partners involved in watersheds planning, project implementation, research, and education.

Includes members from local and federal government agencies, NGOs, community groups, and other interested parties.

Typically meets quarterly to discuss issues relating to watersheds, in order to pool knowledge and networks towards better management and collaboration.



Meeting Agenda

Lani Watson & Shannon Ruseborn (NOAA Restoration Center)

- Funding Opportunity: Coastal & Marine Habitat Restoration

Patricia Rodriguez, Elise Jarrett (USACE)

- CNMI Post-Disaster Watershed Assessment

Kelsey McClellan, Robbie Green, Becky Skeelee (Pacific Coastal Research & Planning)

- CDBG Hazard Mitigation Action Plan – Public Comment
- Achugao WMP – Public Survey
- Beach Road Shoreline Plan - Updates

Zak Williams (DCRM)

- Watershed Updates

Roundtable Discussion

- Member updates, concerns, opportunities, etc.

Closing





Commonwealth of the Northern Mariana Islands (CNMI)

POST-DISASTER WATERSHED ASSESSMENT

WATERSHED WORKING GROUP (WWG) MEETING

MARCH 1, 2022



"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."



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STUDY AUTHORITY & APPROPRIATIONS

- Authorized by Supplemental Appropriations for Disaster Relief Act of 2019 – **post-disaster watershed studies**
- Address identified **water resources needs from any source**, regardless of agency responsibilities
- Inform **multiple audiences** and decision makers at all levels of government
- Provide **strategic roadmap to inform future investment decisions** by multiple agencies
- Study duration is 30 months (completion July 2022)
- 100% Federally funded, no cost-share agreement needed
- The study will not: propose construction, require NEPA compliance, and require Section 106 review. Study will provide strategies on ways to increase resiliency.



GOAL: Develop a Watershed Assessment to increase resiliency in the CNMI through social, economic, and environmentally sustainable development by planning for disasters, developing infrastructure, and conserving resources.



USACE defines ***Resilience*** as the ability to anticipate, prepare for and adapt to changing conditions, and withstand and recover from disruptions.



MEET THE TEAM – USACE

U.S. Army Corps of Engineers Project Delivery Team		
Name	Role	District
Troy Phan	Project Manager	Honolulu
Brooke Schlenker	Lead Planner	Sacramento
Elise Jarrett	Planner	Sacramento
Patricia Fontanet Rodriguez	Planner	Sacramento
Ellie Covington	Environmental Resources	San Francisco
John Nielsen	Economist	Sacramento
Christina Thao	Economist	Sacramento
Eugene Maak	Hydraulic Engineer	Sacramento
Chuck Mesa	Coastal Engineer	Los Angeles
Ruzel Ednalino	Cultural Resources	San Francisco



LOCAL PARTNERS

Organization	Purview			
	Flooding	Water Quality	Environmental	Energy
Office of Planning and Development				
Bureau of Environmental and Coastal Quality – Division of Coastal Resources Management				
Bureau of Environmental and Coastal Quality - Division of Environmental Quality				
Historic Preservation Office				
Commonwealth Utilities Corporation				
Commonwealth Ports Authority				
Pacific Coast Research and Planning				
Micronesia Islands Nature Alliance				
Office of the Mayor of Tinian				
Office of the Mayor of Rota				
Office of the Mayor of Saipan				

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FEDERAL PARTNERS

Organization	Purview			
	Flooding	Water Quality	Environmental	Energy
EPA				
Dept. of Interior <ul style="list-style-type: none"> • USFWS • NPS • Office of Insular Affairs • U.S. Geological Survey 				
Dept. of Agriculture <ul style="list-style-type: none"> • NRCS 				
Dept. of Commerce <ul style="list-style-type: none"> • NMFS • National Oceanic and Atmospheric Administration • Economic Development Administration 				
Federal Emergency Management Agency (FEMA) <ul style="list-style-type: none"> • Region IX • Pacific Area Office • FEMA Recovery DR-4404 				
U.S. Bureau of Reclamation				
Dept. of Energy				
Dept. of Housing and Urban Development				
Dept. of Transportation				

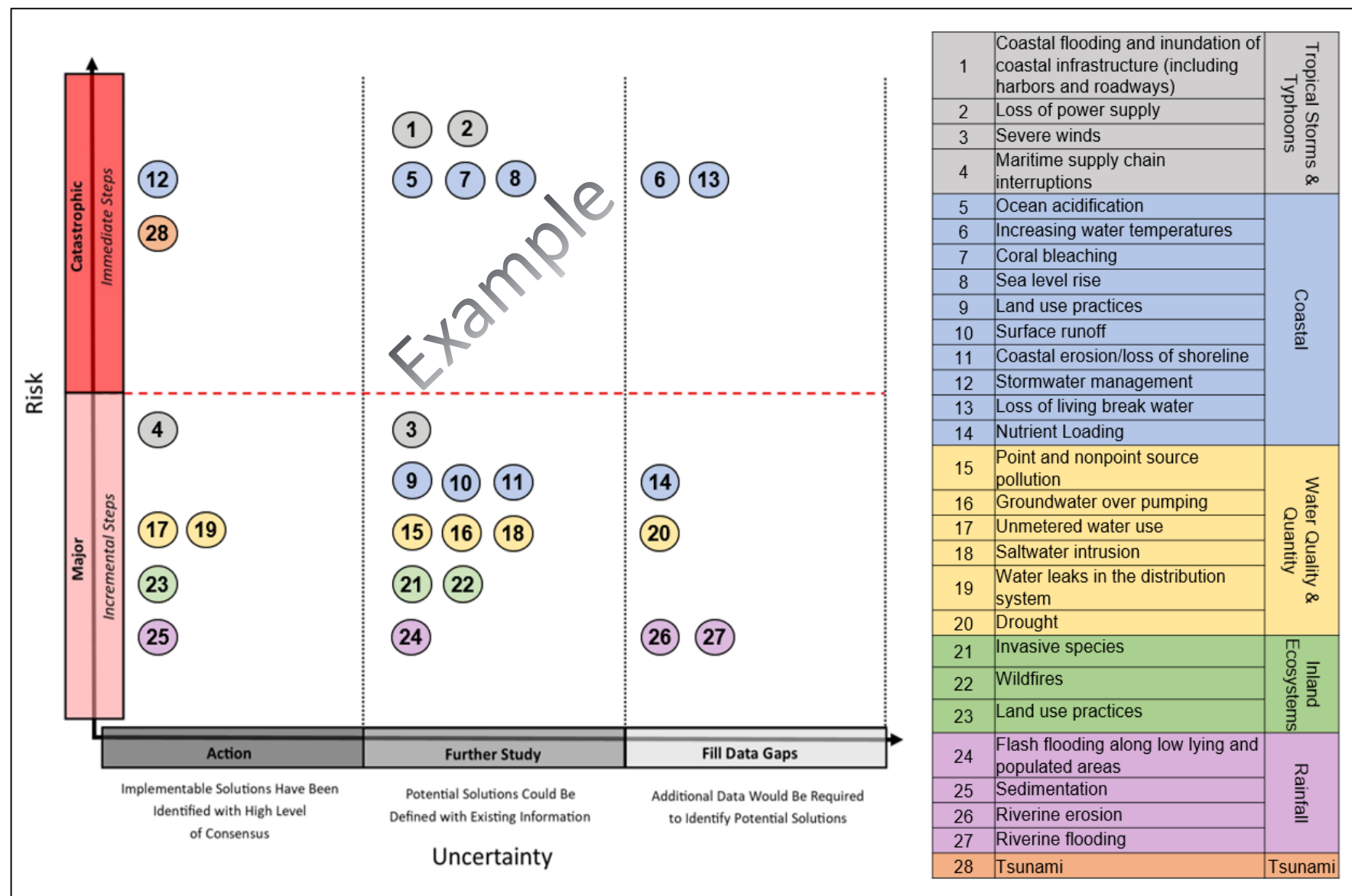


PROBLEM STATEMENTS

1. **Tropical storms and typhoons** cause life safety risks, economic damages, and environmental degradation.
2. **Coastal areas** are at increased risk of environmental degradation and are vulnerable to naturally occurring and anthropogenic stressors.
3. **Water quality and supply** are at risk of contamination and are vulnerable to naturally occurring and anthropogenic stressors.
4. **Inland ecosystems** are at increased risk of degradation and habitat loss and are vulnerable to naturally occurring and anthropogenic stressors.
5. Heavy rainfall events which lead to **flooding** and erosion can cause life safety risks, economic damages, and environmental degradation.
6. **Tsunamis** cause life safety risks and economic damages throughout the commonwealth.



RISK & UNCERTAINTY ASSESSMENT & EVALUATION



DRAFT RECOMMENDATIONS

Stormwater Management			
Focus	Recommendation	Cost	Type
Engineering with Nature	Wetland Restoration and Bioswales: Develop areas to direct and capture runoff and perform natural water filtration processes to remove contaminants before entering water systems or recharging groundwater resources.	\$	Project
		Potential Funding: EPA, USFWS, USACE CAP 206, NRCS Potential Partners: EPA, BEQC-DCRM, DLNR, USACE, USFWS, NRCS	
	Rainwater Catchment Systems for Groundwater Recharge: Install infrastructure to utilize precipitation that can help recharge groundwater resources and reduce surface runoff.	\$\$	Project
		Potential Funding: OMB, NRCS, USACE Potential Partners: CUC, DPW, BECQ-DEQ	
Drainage System Improvements	Scheduled Maintenance and Drain Cleaning: Continued upkeep of storm drains in urban areas to maintain water flow and prevent backups.	\$	Planning
		Potential Funding: DPW, CUC Potential Partners: CUC, DPW, DECQ-DCRM, OPD	
	Sediment Capture: Install sediment capture tanks in urban or steep terrain areas to intercept large sediment debris and capture sediment before being released into waterways.	\$\$	Project
		Potential Funding: EPA, NRCS, Dept. of Lands and Natural Resources (DLNR) Potential Partners: CUC, DPW, BEQC-DCRM, NRCS, EPA	
	Improve Drainage Network: Identify areas of the network that need to be updated or replaced to maintain and/or improve its functionality.	\$\$	Study
		Potential Funding: OMB, CUC, DPW Potential Partners: CUC, DPW, BECQ	

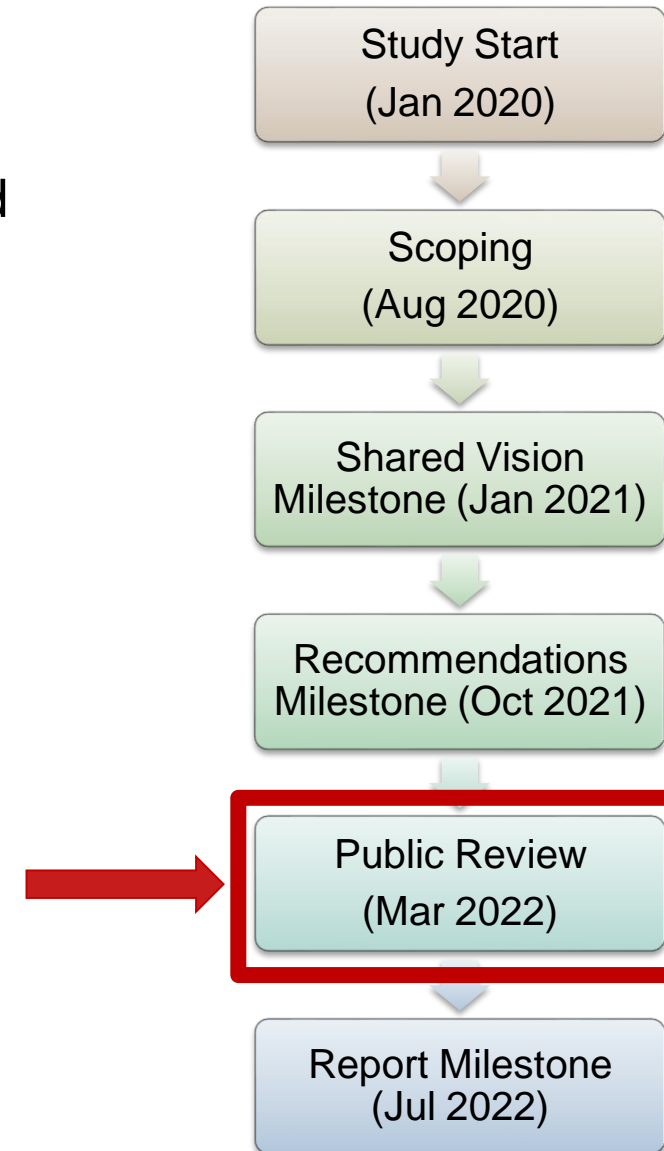
Example



WHAT'S NEXT?

- Agency/public review of Draft Watershed Plans – *March 2022*
- We would appreciate your input!
 - Are the draft recommendations in alignment with your organization's goals and objectives?
 - Are they reasonable and supportable?
 - What needs to change to get to reasonable and supportable?
- Draft Plan will be available in USACE and DCRM website.
- Email comments to:

CNMIWA@usace.army.mil



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THANK YOU FOR YOUR TIME!

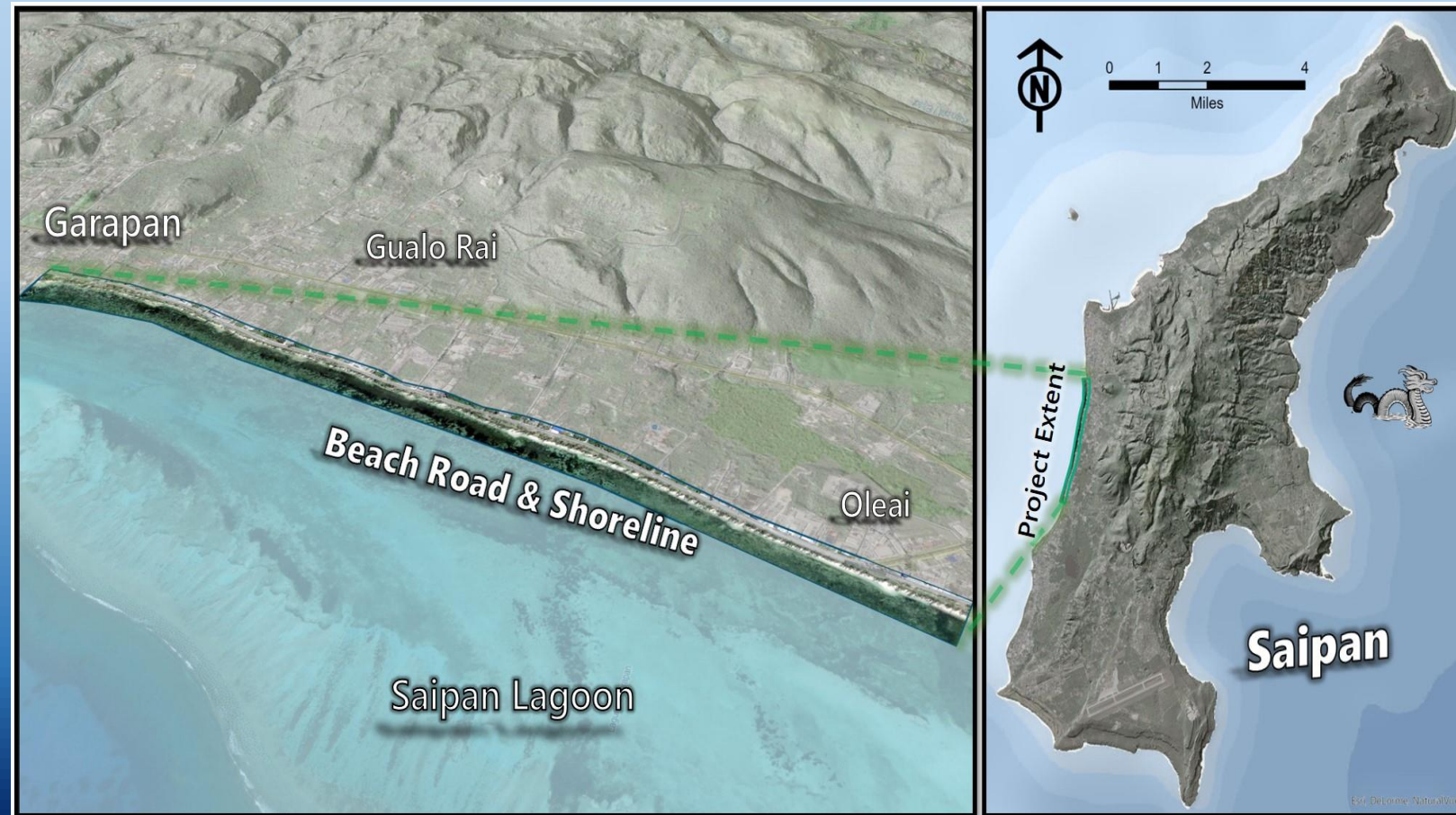


QUESTIONS?

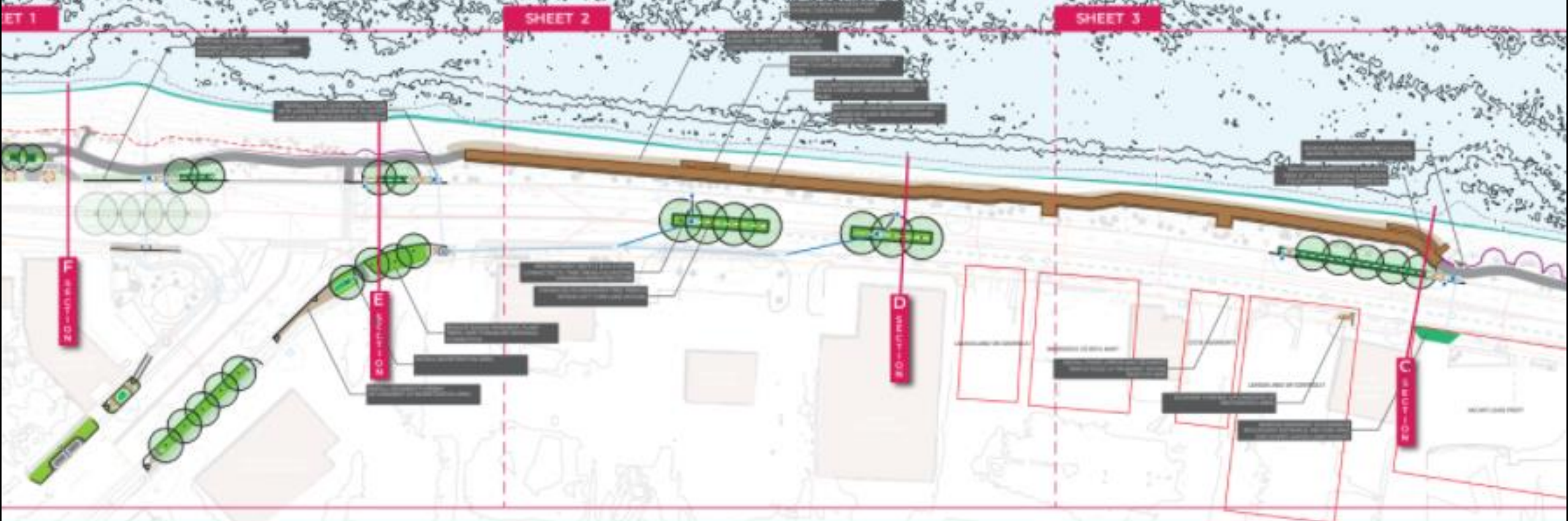




Shoreline Stabilization and Enhancement Plan for the Beach Road Pathway, Saipan CNMI







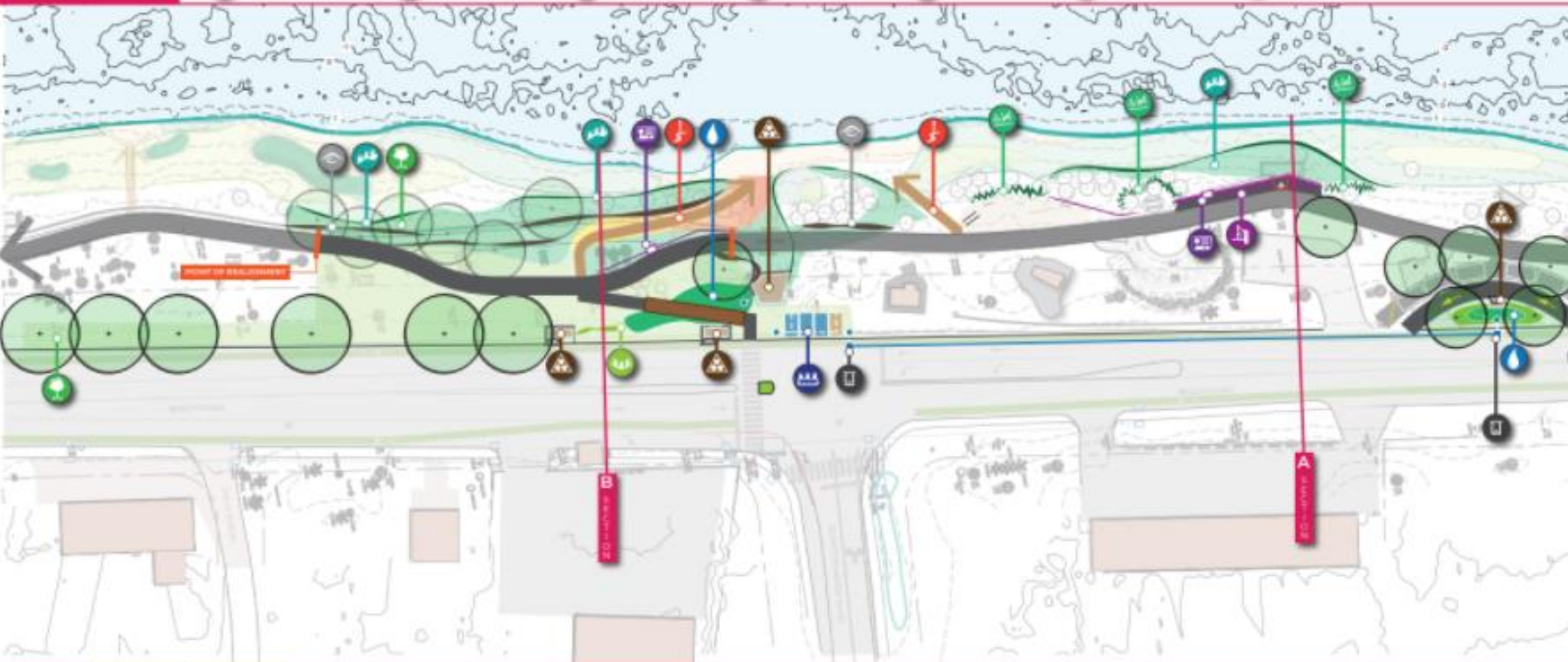
ATKINS-KROLL INTERSECTION
REFINED SCHEMATIC DESIGN





SYMBOL LEGEND

- TREE PLANTING
- BIOPILTRATION SYSTEM
- ACCESSIBLE CONNECTION
- BAR TOP SEATING
- SEDIMENT TRAP
- DEEP SLUMP CATCH BASIN
- POROUS PAVEMENT
- EDUCATIONAL SIGNAGE
- WAVE BREAK
- PAVEMENT REMOVAL
- BIOWETENTION BASIN
- SHORELINE RESTORATION
- VEGETATED SWALE
- LIVING FENCE



QUARTERMASTER ROAD SCHEMATIC DESIGN: PATH REALIGNMENT



Public Meeting Information

- Virtual Open House (half day)
- Placeholder 1st week of April
- More information to come after this week



Nature-Based Solutions for Hazard Mitigation

...or: How we might convince HUD to fund some NBS projects



CNMI Watershed Working Group Meeting | 3/1/2022

Robbie Greene | Robbie.greene@pacificcrp.org

www.PacificCRP.org

PCR



- HUD has identified ~\$16 million in additional hazard mitigation funds for CNMI
- HUD withholds until CNMI publishes a hazard mitigation action plan.
- In developing the plan, PCRP noted some interesting language in Federal Register:

“Grantees are encouraged to develop a process to incorporate nature-based solutions and natural or green infrastructure in the selection and/or design of CDBG-MIT projects. Each grantee is encouraged to describe how it will consider natural infrastructure during the project selection process (e.g., alternatives and benefit-cost analysis); or propose projects and programs in the action plan that incorporate natural infrastructure. Natural or green

infrastructure is defined as the integration of natural or semi-natural systems or systems (such as wetlands or land barriers) or engineered systems and processes into investments in resilient infrastructure. For example, using permeable pavements and amended soils to improve infiltration and pollutant removal.

Landscape Architecture

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS
Community Development Block Grant Mitigation (CDBG-MIT) Program



Initial Action Plan
Draft for Public Comment

PUBLIC COMMENT PERIOD:
February 11, 2022 – April 2, 2022

RELEASED BY THE NORTHERN MARIANAS HOUSING
CORPORATION: February 11, 2022

APPROVED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN
DEVELOPMENT: TBD

PCRPP



90% of \$16 million toward resiliency of existing infrastructure more resilient, but we still have 5% to get creative with for “Planning Activities”!

Use of Funds	Budget	Expenditure Schedule					
		2022	2023	2024	2025	2026	2027
Infrastructure	\$14,602,500	\$1,460,250	\$5,110,875	\$5,110,875	\$2,920,500	-	-
Planning Activities	\$811,250	\$81,125	\$283,938	283,938	\$162,250	-	-
Administration	\$811,250	\$81,125	\$283,938	\$283,938	\$162,250	-	-
Total	\$16,225,500	\$1,622,500	\$5,678,750	\$5,678,750	\$3,245,000	-	-



Making the case using the “M” Word....



Nature-Based Solution	Average Cost	Maintenance Cost	Cost Considerations
Shorelines – Vegetation/Living	\$68-\$113 per linear ft.	Less than \$100 per linear ft. annually	Ecological baseline assessment, design, engineering, permitting, installation, monitoring, and maintenance to include invasive plant control, periodic re-plantings following major disturbances.
Shorelines – Living plus Structural	\$117-\$603 per linear ft. (dependent on structural options)	Less than \$100 per linear ft. annually	
Shorelines – Hardened/Structural	\$457-\$966 per linear ft/ (\$125 for vinyl bulkhead to \$1,952 for seawall)	\$100 to >\$500 per linear ft.	Repair or complete replacement of the hardened shoreline when damaged by a storm event or erosion (see Smiling Cove Marina restoration on Saipan)
Stormwater – Rain Garden	\$5-\$16 per sq. ft.	\$0.31-\$0.61 per sq. ft.	Design, engineering, permitting, natural materials, installation, maintenance (watering, litter removal, clearing flow pathways twice per year and after storm events).
Stormwater - Bioswales	\$5.50-\$24 per sq. ft.	\$0.06-\$0.21 per sq. ft.	
Stormwater – Vegetated Filter Strips	\$0.03-\$3.00 per sq. ft.	\$0.07 per sq. ft.	

- Still not enough info. On NBS within the CNMI to conduct standard BCA
- Should we consider having a “project tracker” specific to NBS to assist in justifying mitigation projects (or FEMA mission assignments/support functions)?
 - Need data on construction, maintenance, duration, funding source, etc...

Another component of hazard mitigation planning that warrants attention and some improvement is cost-benefit analysis (CBA). While these analyses can be conducted in a fairly standardized manner for traditional mitigation measures and structures (e.g. FEMA’s CBA plugin for Excel), there is no formal methodology or adopted guidance in CNMI for conducting a CBA for nature-based infrastructure (NBI) projects, such as coral reef restoration or erosion mitigation through living shorelines. Numerous federal, state, and local agencies have been publishing broad guidance and planning principles for NBI, yet estimates on both costs and benefits are characterized by such a wide range of figures that these guidance tools may not be helpful in a local context. A planning project to generate locally-relevant estimates for NBI costs and benefits, and an associated CBA tool, would provide a means for the Commonwealth to more easily justify nature-based and hybrid mitigation projects, which local partners have begun implementing on a more opportunistic basis.

Questions?



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Watershed Warriors



Watershed Warriors Program provides place-based environmental and science learning for 4th-grade students at local schools within our priority watersheds.

- Previously implemented in Garapan, now Achugao (GTC Elementary School).
- 2021 group showed 49% improvement in understanding overall, with 80% improvement in recognition of Achugao watershed.
- Adapting and expanding program in 2022.
 - Started last week!



Achugao Upland Reforestation



Finishing permitting and approval.

➤Awaiting DFW approval.

Propagation of native trees via DLNR Forestry





Roundtable

Updates, concerns, opportunities?

- Grant: NRCS Emergency Watershed Protection (EWP)
 - “The program offers technical and financial assistance to help local communities relieve imminent threats to life and property caused by floods, fires, windstorms and other natural disasters that impair a watershed.”
Examples: **removing debris from waterways**, streambank restoration, establish vegetative cover, purchase floodplain easements
 - “\$300m to remain available until expended”
 - <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/#>
- Grant: NRCS Watershed & Flood Prevention Operations (WFPO)
 - “to work together to prevent erosion; floodwater and sediment damage; to further the conservation development, use and disposal of water; and to further the conservation and proper use of land in authorized watersheds.”
Examples: erosion and sediment control, flood prevention, **water quality improvements**, habitat enhancement
 - “\$500m to remain available until expended”
 - <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wfpo/>
- Grant: NRCS Watershed Rehabilitation Program
 - “Rehabilitate aging dams that are reaching the end of their design lives. This rehabilitation addresses critical public health and safety concerns.”
 - “\$118m to remain available until expended”
 - <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wr/>
- Report: UN Intergovernmental Panel on Climate Change (IPCC)
 - Climate Change 2022: Impacts, Adaption & Vulnerability
 - assesses the impacts of climate change, looking at ecosystems, biodiversity, and human communities at global and regional levels. It also reviews vulnerabilities and the capacities and limits of the natural world and human societies to adapt to climate change.”
 - <https://www.ipcc.ch/report/ar6/wg2/>

Thank you!



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