STATE OF LOUISIANA
DIVISION OF ADMINISTRATION
LOUISIANA OFFICE OF COMMUNITY DEVELOPMENT

LOUISIANA Office of COMMUNITY DEVELOPMENT

REPORTING PERIOD START	6/26/2022
REPORTING PERIOD END	9/25/2022
WATERSHED REGION	7
NATIONAL OBJECTIVE	N/A – Planning Activities
ELIGIBLE ACTIVITY	Planning; HCDA Sec. 105(a)(12)
EXPENDITURE/COMPLETION STATUS	321,198.31

RCBG PROGRAM QUARTERLY REPORT

REPORTING CONTACT INFORMATION

CONTACT PERSON NAME	Rachelle Sanderson
CONTACT PHONE	816.830.3633
CONTACT EMAIL	rsanderson@crcpla.org

WATERSHED COORDINATION METRICS

HOURS OF WORK PERFORMED (by Watershed Coordinator)	237.5
NUMBER OF MEETINGS FACILITATED	No RSC meetings were facilitated
ATTENDANCE PER MEETING	N/A
DIVERSITY OF DISCIPLINES/INTERESTS REPRESENTED AT MEETINGS	N/A
DESCRIPTION OF OTHER COORDINATION ACTIVITIES UNDERTAKEN	To see other coordination activities please see the attached narrative report.

CRS PARTICIPATION METRICS (if applicable)

CRS SCORES AND/OR NUMBER OF PARTICIPATING COMMUNITIES (one input per year)	Please see annual Q3 update in the report

EDUCATION AND TRAINING METRICS (if applicable)

NUMBER OF TRAINING SESSIONS HELD	0
NUMBER OF ATTENDEES PER EVENT	N/A

FLOODPLAIN MANAGEMENT METRICS (if applicable)

HOURS OF WORK PERFORMED (by Regional Floodplain Manager)	N/A
DESCRIPTION OF DEVELOPED AND ADOPTED ORDINANCES THAT REDUCE FLOOD RISK (as they occur)	N/A
CRS SCORES AND/OR THE NUMBER OF PARTICIPATING COMMUNITIES WITHIN THE REGION (one input per year)	Please see annual Q3 update in the report
DESCRIPTION OF ASSISTANCE PROVIDED TO PARISH AND MUNICIPAL STAFF WITH FLOODPLAIN PERMITTING	N/A
DESCRIPTION OF OTHER CRS OR FLOODPLAIN MANAGEMENT ACTIVITIES UNDERTAKEN	N/A

GOVERNANCE AND SUSTAINABILITY METRICS (if applicable)

NUMBER OF GOVERNANCE STRUCTURE OPTIONS (one input per year)	N/A
NUMBER OF GRANT APPLICATIONS SUBMITTED (one input per year)	0
NUMBER OR AMOUNT OF CAPITAL PROJECTS FUNDED (one input per year)	N/A

PUBLIC OUTREACH METRICS (if applicable)

NUMBER OF CITIZEN INTERACTIONS OR COMMUNITY-ORIENTED EVENTS HELD	To see other activities please see the attached narrative report.
NUMBER OF ATTENDEES AT EVENTS	0
NUMBER OF CONTINUING EDUCATION HOURS OR CERTIFICATIONS AWARDED TO PARISH, MUNICIPAL OR REGIONAL STAFF	0
NUMBER OF CONTINUING EDUCATION HOURS OR CERTIFICATIONS AWARDED TO LOCAL PROFESSIONALS	0
DESCRIPTION OF OTHER PUBLIC OUTREACH ACTIVITIES UNDERTAKEN	To see other activities please see the attached narrative report.

REGIONAL CAPACITY ANALYSIS AND REGULATORY REVIEW METRICS (if applicable)

DESCRIPTION OF DELIVERBALES COMPLETED BY LSU OR WITH INPUT BY LSU	See narrative report

WATER MANAGEMENT RESOURCE SHARING METRICS (if applicable)

NUMBER OF EDUCATIONAL EVENTS HELD	0
NUMBER OF NEW PRACTICES ADOPTED BY MEMBER JURISDICTIONS	0

NARRATIVE

Please describe additional capacity-building activities conducted during the quarter.

See narrative report

REGION 7

2022 QUARTER 3 (06/01/2022- 09/30/2022)
REPORT NARRATIVE

Rachelle Sanderson
Regional Watershed Coordinator (Region 7)
Capital Region Planning Commission

WHAT PROGRESS HAS YOUR ORGANIZATION ACHIEVED IN MEETING THE GOALS AND OBJECTIVES LAID OUT IN THE PROPOSAL?

Highlights

- Submission and positive review of a letter of intent for the NOAA RESTORE Science Program. This letter of intent is attached to this document.
- Application for hiring a new Regional Watershed Coordinator is open and we will be filling this position by December 1.

Regional Steering Committee

The Regional Steering Committee has not met this quarter as we have been waiting for guidance from OCD and the Council on Watershed Management as it relates to the Region 7 boundaries.

Capacity Building

Capacity building for this quarter focused on building relationships across the region and identifying shared challenges and opportunities. This was done by completing, or beginning, the following activities:

ONE-TO-ONE CALLS WITH STRATEGIC STAKEHOLDERS

Similar to previous reports, discussions with strategic stakeholders who are a part of existing organizations, and governments, that are critical to ensuring the success of work within Region 7 are ongoing. These conversations encourage participation in Region 7 meetings, and in some cases, plant the seeds for longer-term asks for partnerships and strategic collaboration where gaps exist in knowledge, skillsets, and resources with the existing RSC membership and implementation team.

Leveraging Funds and Activities & Funding Opportunities

The Louisiana Watershed Initiative approach "requires unprecedented coordination and cooperation across all facets and functions of government agencies as we work together to mitigate future flood risk." It is for this reason that we are also focused on leveraging existing activities, coordinating, and collaborating where there is strategic alignment. Below are activities that Region 7 is leveraging for the purpose of mutually advancing activities between LWI and our partners. **It is important to note that various teams that have been brought together in supporting Region 7 have been successful in every grant-based funding opportunity they have pursued bringing together over 75 individuals across 50 institutions and leveraging over $3.1M through capacity building efforts and 3 funded research grants. Achievements to date can be viewed here and an overview of RCBG phase 1 can be viewed here.**

PARTNERSHIP WITH GEORGETOWN CLIMATE CENTER ($100,000)

Status: Regional Vision is completed, working group is focusing on implementation

- **Funds leveraged:** $100,000 through a grant to GCC from the Doris Duke Foundation

- **Duration:** Regional Vision was completed June 2022 and implementation is ongoing
- **Activity:** Work with local stakeholders on the implementation of goals listed in the Regional Vision

PARTNERSHIP WITH ENVIRONMENTAL PROTECTION AGENCY OFFICE OF RESEARH AND DEVELOPMENT ($50,000)

Status: Work is underway and structured decision-making workshops have taken place. The team will be convening partners to review findings to date. This project has been extended to the end of the year.

- **Funds leveraged:** $50,000
- **Duration:** Spring 2021 – Late-2022
- **Activity:** EPA in partnership with CRPC's Region 7 LWI program will develop a resilience roadmap to operationalize tools and resources focused on goals identified in the Region 7 Guiding Principles Framework with four parishes in the region.

LINCOLN INSTITUTE CASE STUDY AWARD ($2,000)

Status: Awarded June 29, 2021. Our case study was submitted having addressed all comments and is awaiting final review and upload by Lincoln Institute.

- **Funds awarded:** $2,000
- **Duration:** Spring 2021 – Fall 2022
- **Activity:** A team of individuals from LSU, NYU, and Capital Region Planning Commission will be putting together a case study titled, *Can Meandering Paths Connect a Fragmented Planning System? Developing a regional governance structure to enable watershed planning in Southeast, Louisiana, inquiry study*. This case study will focus on the development of the Region 7 governance structure and the challenge and opportunities discovered within that process.

NOAA RESTORE SCIENCE PROGRAM FUNDING OPPORTUNITY: PLANNING FOR ACTIONABLE SCIENCE ($115,172)

Status: Awarded, all three workshops have taken place and materials from the final workshop are attached.

- **Funds awarded: $115,172 to Capital Region Planning Commission**
- **Duration: September 1, 2021 – August 31, 2023, with a one-year no-cost extension**
- **Activity:** To develop a cost-benefit framework for watershed management that will inform and reduce uncertainties during project selection of the Louisiana Watershed Initiative. The project team includes: Capital Region Planning Commission (Lead), LSU, LSU Agricultural Center, Pontchartrain Conservancy, Louisiana's Office of Community Development and, Department of Environmental Quality. More information can be found here:https://restoreactscienceprogram.noaa.gov/funding/2-3-million-for-planning-actionable-science)

RESTORE CENTER OF EXCELLENCE ($426,543)

Status: Awarded, data collection and organization is underway and we're working on setting up opportunities for outreach and engagement related to the project.

- **Funds awarded: $426,543 to The Data Center**

- **Duration: September 2021 – September 2023**
- **Activity:** This research funded through the RESTORE Center of Excellence will: (1) develop new modeling strategies and micro-level data sources for exploring coastal population change A major contribution of the project is to address issues of measurement at an appropriate temporal and geographic scale to understanding individual- and community-level responses to coastal hazards. (2) Measure the empirical effects of flood events on altering the baseline pattern of population and economic shifts in coastal Louisiana. (3) Build bridges between the Coastal Master Plan and other regional planning efforts that are anchored in empirical analysis and projection uncertainty. The project team includes: The Data Center of Southeast Louisiana (Lead), LSU, and Capital Region Planning Commission.

GULF RESEARCH PROGRAM BRIDGING KNOWLEDGE TO ACTION ($300,000)

Status: Awarded, outreach discussions and data collection are ongoing. The one pager for the project and the presentation from the first outreach event is attached.

- **Funds awarded: $300,000 to LSU**
- **Duration: Through November 2023**
- **Activity:** Utilizing hydraulic & hydrological modeling in combination with a local vacant properties database and legal, planning, and policy tools aimed at addressing inland flooding, population transitions, green infrastructure, and urban revitalization, the project team will develop actionable management alternative strategies. This approach will demonstrate strategies for optimizing growth as a function of locational efficiency and accessibility, while minimizing growth in hazardous areas or areas with high flood protection value.

INSTITUTE FOR SUSTAINABLE COMMUNITIES (ISC) & KRESGE FOUNDATION REGIONAL COLLABORATION FOR EQUITABLE CLIMATE SOLUTIONS (RCECS) PILOT COHORT, NOW CALLED URBAN EQUITY CLIMATE COMPACT (UECC)

Status: The team will be expanding and has developed a scope of work for the activity listed below. We will be attending Race Forward training on racial equity through the end of the year among other meetings and events.

- **Duration: Through mid 2023**
- **Activity:** This work will focus on funding mechanisms for affordable housing, the increasing cost of flood insurance, and increasing residential energy burden.

ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF RESEARCH AND DEVELOPMENT, COMMUNITY RESILIENCE

Status: The second phase has been funded.

- **Duration: Through Fall 2024**
- **Activity:** This work will focus on understanding community resilience metrics across the region, ground truthing them, and then building programming to address gaps and opportunities as identified through those metrics and discussions.

PARTICIPATION IN COMMITTEES/TASK FORCES

- APA Water and Planning Network Steering Committee
- Georgetown Climate Center and LCG's Regional Climate Collaboratives Forum
- Network of Networks
- The Water Collaborative

Elevating Work to National/International Platforms

ABSTRACTS SUBMITTED

- **Accepted –** Louisiana APA, Watershed based flood risk management in south Louisiana: integrating research into practice in the wake of the 2016 floods

PRESENTATIONS GIVEN/SCHEDULED

- **June 16:** Greauxing Resilience at Home webinar to present on GCC work
- **July 6:** Lunch & Learn seminar for LSU School of Architecture students
- **September 9:** Baton Rouge Geological Society to present on Region 7 work
- **September 13:** Partnership for Gulf Coast Conservation Conference to present on Region 7 work
- **Scheduled October 17:** NYU Environmental Infrastructure for Sustainable Cities class
- **Scheduled November 7-9:** Louisiana APA Conference to present on Region 7 work
- **Scheduled December 4-7:** 2022 Restore America's Estuaries National Conference to present on GCC partnership work and NOAA RESTORE work

ADDITIONAL OPPORTUNITIES PURSUED

- **None during this quarter**

LSU Deliverables

CRPC has been coordinating with the LSU consultant team on a weekly basis to focus on the following items. All work related to the network analysis, plan evaluation, and subdivision code evaluation has been finalized and reports will be made available Fall 2022.

COLLABORATION AND WORK ON CAPACITY BUILDING AND KNOWLEDGE CREATION

This work has focused on the following items:

- Collaboration through Gulf Research Program grant
- Collaboration through NOAA RESTORE grant
- Collaboration through RESTORE Center of Excellence grant

- Collaboration with Co-City Fellow with Build Baton Rouge on Reflective Case Studies on Coalition Building in Multi-Jurisdictional Context
- Collaboration through GCC Planning Work Group
- Collaboration on Lincoln Institute Case Study

CONSISTENCY AND LEVERAGING DELIVERABLES OF OCD'S CONSULTANTS

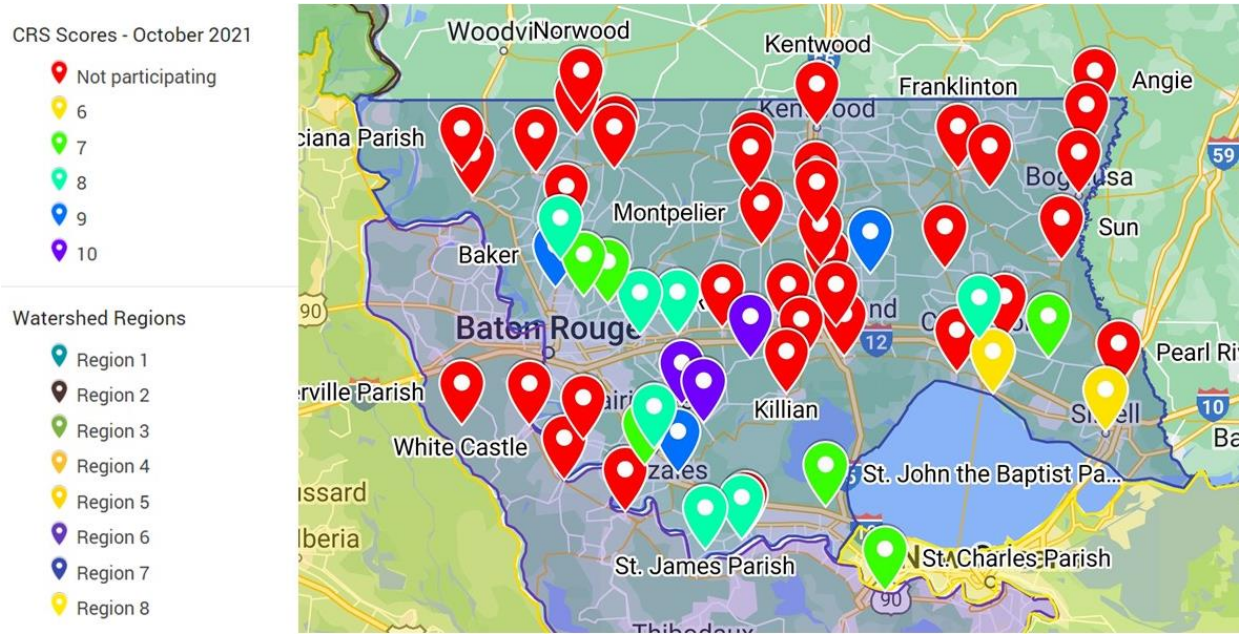
Additionally, LSU and CRPC have been in conversations with OCD, and their consultants, to ensure that work is not being duplicated. During these conversations, it was made clear that some deliverables will need to be altered to leverage the work of other contractors. Several conversations have been dedicated to this.

WHAT CHALLENGES OR OBSTACLES HAVE BEEN FACED IN MEETING THESE GOALS AND OBJECTIVES?

On August 18, 2022 the Council on Watershed Management met and considered an agenda item to split the Amite River Basin from Region 7. This discussion had been ongoing for quite some time and has led to a fragmentation within the Region. While the work still continues, the RSC will not meet until this issue is resolved.

COMMUNITY RATING SYSTEMF

Since October 1, 2021 no new communities were added. Slidell increased from an 8 to a 6. Ascension Parish increased from an 8 to a 7. St. James Parish decreased from a 7 to an 8. Below is a map of communities across the Region. An interactive version of the map can be accessed at: https://www.google.com/maps/d/u/0/edit?mid=1i8xnieo4H7My48eHweoLOzDYSM6YtDY&usp=sharing



HAVE THE GOALS AND OBJECTIVES CHANGED? HOW?

The goals and objectives have not changed.

NOAA RESTORE Science Program 2023; NOAA-NOS-NCCOS-2022-2007377

(1) Title: **Modifying benefit/cost analysis tools to include environmental and social co-benefits in evaluating flood mitigation projects in estuarine watersheds to benefit Gulf of Mexico ecosystems.**

(2) Investigators: (2.1) Robert R. Twilley, Lead Investigator; Coastal Ecosystem Design Studio, Director; Professor, Department of Oceanography and Coastal Sciences, LSU, System Ecology. (2.2) Traci Birch, Co-Investigator; Coastal Ecosystem Design Studio, Associate Director; Assistant Professor, Architecture, LSU: Urban Planner. (2.3) Tom Douthat, Co-Investigator; Assistant Professor, Department of Environmental Sciences, LSU: Environmental policy. (2.4) Carol Friedland, Co-Investigator; LaHouse Resource Center, Director; Associate Professor, Department of Biological and Agricultural Engineering, LSU AgCenter: Damage assessment modeling and evaluation. (2.5) Jerod Penn, Co-Investigator; Assistant Professor, Department of Agricultural Economics and Agribusiness, LSU AgCenter: Environmental economics and valuation. **Natural Resource Managers: (**2.6) Rachelle Sanderson, Co-Production Lead; Director of Planning, Region 7 Regional Watershed Coordinator, Capital Region Planning Commission (CRPC). (2.7) Genea Lathers, Resilience and Mitigation Manager, Infrastructure and Planning, Louisiana Office of Community Development - Disaster Recovery Unit (OCD) (2.8) Chuck Berger, Engineer, Louisiana Department of Environmental Quality (DEQ) (2.9) Jeffrey Giering, Assistant Section Chief - Hazard Mitigation, Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP). (2.10) Matthew Weigel, Coastal Resources Scientist Manager - Office of Wildlife, Louisiana Department of Wildlife and Fisheries (LDWF)

(3) Natural Resource Management Issue: Land use decisions in coastal watersheds involving point and non-point nutrient loadings are one of the most significant impacts on water quality that impair Gulf of Mexico ecosystems. Climate change associated with increased frequency of intense precipitation events has also changed coastal watersheds by flooding communities, which then impacts land-use decisions associated with projects designed to reduce flood risks in low-lying landscapes. This offers a unique opportunity where investments in community development block grants (CDBG) to mitigate flood hazards could also be designed to reduce downstream risks to impaired water quality in coastal waters. However, evaluation starts with benefit cost analysis (BCA), and the FEMA tool communities was not designed for coastal watersheds, and it does not sufficiently consider environmental and social benefits that may encourage designs of flood control projects to reduce downstream impacts (externalities) and does not monetize harms that some project designs may cause to the environment. As a result, decisions on flood mitigation projects in coastal watersheds are not structured to encourage designs to improve water quality impacts on Gulf of Mexico ecosystems.

The Louisiana Watershed Initiative (LWI) is a paradigm shift in how water management using a regional watershed approach can influence integrated flood mitigation designs in the state and beyond. Five of Louisiana's eight watershed regions drain directly into the Gulf of Mexico and include potential flood mitigation projects in watersheds that have the highest frequency of repetitive losses from flood events in the nation. Because LWI is funded in part via CDBG, it must benefit low-and moderate-income (LMI) communities, and comply with Justice 40's environmental justice mandates and triple bottom-line. Therefore, the LWI approach, which is intended to enable transparent and objective decision-making that integrates natural floodplain functions together within built environments for regional watershed-based flood risk management, is an excellent opportunity to develop new standards in the Gulf of Mexico region. Round 3 of project decisions by LWI in early 2026 is an opportunity to optimize flood mitigation projects to

have both environmental and social value for communities in coastal watersheds that help restore coastal ecosystems downstream. We propose to enhance the present BCA framework through a project co-design process with up to three local communities that are at risk of flooding to include environmental and social co-benefits that would have a positive effect on Gulf of Mexico ecosystems.

But there are challenges to introducing new valuation techniques that encourage communities to include design innovation in flood risk mitigation. Initial findings of our NOAA RESTORE planning grant (NA21NOS4510188) articulated concerns by stakeholders and natural resource managers that developing new tools to reduce uncertainty is well intentioned, but co-production is a critical component to effective usability. If jurisdictions do not have the capacity to use new tools, then the process does not create an effective pathway towards decision-making. Therefore, our project will also create opportunities for capacity building through workshops, training, and piloting the tool with communities in partnership with our natural resource managers. We propose a strategy that will address water quality conditions of downstream estuarine ecosystems and prioritize flood mitigation strategies in low-and-moderate income communities (LMI).

(4) Research Questions-Methods-Findings: Our approach will create a FEMA-BCA toolkit that uses ecosystem function assessment indexes (e.g., the HGM assessment methods) to monetize project impacts for coastal watershed benefit areas based on standardized value tables for pre-post project functional estimates. The tool will also aggregate community resilience using an existing damage tool, the Flood Safe Home (FSH), to monetize protection at a watershed level and enable location specific equity and vulnerability weighting by socio-economic vulnerability, income, and tenure status (renters, homeowners). FSH is a web decision tool funded by Louisiana Sea Grant to provide building-level information to residents and community officials about the optimal elevation of homes considering freeboard cost, insurance savings, reduction in expected flood losses, and overall monthly and lifecycle savings. Applicants will input standard BCA information, as well as a minimal number of environmental project details, which will inform the monetization of environmental benefits and costs, and FSH will calculate protection, and adjust damage estimates for vulnerable populations. This can be complemented by existing community level stormwater mitigation design tools, such as CLASIC (Community-enabled Lifecycle Analysis of Stormwater Infrastructure Costs), embedded in LWI regional models.

As this ecosystem design tool is developed, the team will also develop a process of capacity building that will include three implementation steps that secure co-production. (1) Piloting the enhanced BCA framework through a project co-design process with up to three local communities that are at risk of flooding and have low capacity in project applications. (2) The project team along with co-production participants will host a beta testing workshop to evaluate the application of the ecosystem design tool. (3) The project team with co-production participants will host training events and workshops to help develop, test, and utilize the ecosystem design tool being created across all watersheds participating in Round 3 of LWI funding to assist communities and inform projects proposed for evaluation.

(5) Strategy and timeline: (1) Fall 2023: Meeting with team, natural resource managers, and communities to establish expectations and identify information gaps. (2) Fall 2023-Spring 2025: Gathered information will be used for the development of the tool and community co-design discussions. (3) Spring 2025-Fall 2025: Product will be a tool that can be used to the benefit of Round 3 Training workshops. Outcome will be a group of individuals who are applicants for Round 3 who learn how to use the tool. (4) Winter 2025-Spring 2026: Applications are accepted for Round 3, managed by natural resource managers. Outcome is a list of projects selected for

funding. (5) Summer-Winter 2026: Post-review analysis of Round 3 compared to Rounds 1 and 2. Product will be a comparative analysis outlining how the utilization of the tool shifted the types of projects and benefits/costs with benefits to estuarine ecosystems.

(6) Scoping and design phases of planning project: Through its previous NOAA RESTORE grant, the team hosted 3 workshops, 12 small-group interviews, and formal and informal discussions that engaged over 50 individuals. Through the work of LWI Region 7, a partner network of over 50 institutions and 75 individuals is maintained. This grant will utilize and further expand the existing network through: (1) the use of calculation tools as case studies and parameterize who are the beneficiaries, producing benefit allocations for different scenarios; (2) building on previous NOAA RESTORE planning grant to develop a framework that could numerically consider factors described in this proposal; (3) working one-to-one with up to three communities to co-design projects for submission in Round 3 to test the tool; (4) training and beta testing workshops with practitioners (described above).

(7) Implementing and evaluating coproduction process: The team will evaluate its coproduction process through the following opportunities. (1) Beta testing workshop at Gulf of Mexico Conference (GOMCON) in spring 2025. (2) Community co-design workshops with up to three communities to design projects based on metrics within the tool in alignment with LWI vision. (3) Post-Round 3 analysis of the projects to see how they performed with this tool and if the use of the tool altered results from the projects that were selected for the first and second rounds of funding. (4) One-to-one and small group discussions with natural resource managers, experts, and practitioners to discuss the tool, design the tool, and evaluate the tool.

(8) Management agency participation: Each of the following agencies will participate in facilitated discussions to steer overall design of the tool to ensure its usefulness and relevance to their work through the context of LWI. Additionally, these agencies may help recruit individuals and communities for future workshops. **(8.1)** CRPC is a Council of Governments, Metropolitan Planning Organization for the Baton Rouge area, and is the fiscal agent and coordinator for Region 7 of LWI. **(8.2)** OCD is the state agency that manages the CDBG-MIT funds that fund LWI. **(8.3)** DEQ manages enforcement and programs related to the implementation of the Clean Air and Water Acts. **(8.4)** LDWF manages and protects Louisiana's natural resources. Expertise on natural resource management of flora, fauna, and the natural environment. **(8.5)** GOHSEP works with governmental and non-governmental organizations to prepare for, prevent, respond to, recover from and mitigate against future emergencies and disasters.

(9) Diversity, inclusion, and equity: **Diversity:** Throughout our NOAA RESTORE planning grant we invited a diverse set of individuals (life and work experience) to the table and we intend to continue to do so for this opportunity. **Inclusion:** During the planning grant we empowered people to speak to their diverse experiences through facilitation techniques and by valuing all perspectives. The project team will continue to do this for this opportunity. **Equity:** During the planning grant we worked to provide equal access to those who attended by offering participation stipends, having food at meetings, breaking down scientific information into relatable images and narratives, and developed tabletop exercises with a variety of ways for people to communicate.

(10) Budget: The total proposed budget is $1,307,550 for three (3) years supporting three different organizations (LSU, LSU AgCenter, CPRC). Three years of funding will support salaries for the investigators ($241,026), four graduate students ($330,000), one post-doc ($180,000), participant costs ($27,000), travel & supplies ($33,000), outreach/training activities ($119,147), outreach manuals/materials ($109, 933) and balance in fringe and overhead costs ($267,444).

NOAA RESTORE WORKSHOP #3

IDENTIFY APPROACHES FOR INCORPORATING CO-BENEFITS AND COSTS TO HAZARD MITIGATION DECISION-MAKING

Date: July 13, 2022

Time: 11:30 a.m. – 2:00 p.m.

Location: Main Library at Goodwood - 7711 Goodwood Blvd, Baton Rouge, LA 70806

AGENDA

TIME	ITEM
11:30 a.m. – 11:45 a.m.	**Get lunch and get settled**
11:45 a.m. – 12:40 p.m.	**Introductions and present additions for a potential benefit-cost analysis (BCA) framework and capacity-building ideas**
12:40 – 1:45 p.m.	**Breakout group discussions**
1:45 – 1:55 p.m.	**Group report out**
1:55 – 2:00 p.m.	**Closing and next steps**

Funding acknowledgment and thanks: This work is a result of research funded by the National Oceanic and Atmospheric Administration's RESTORE Science Program under award NA31NOS4510188 to Capital Region Planning Commission and their partners LSU AgCenter, LSU, and Pontchartrain Conservancy.

NOAA RESTORE Science Program Grant Workshop #3

July 13, 2022

The team

NATURAL RESOURCE MANAGERS

LOUISIANA WATERSHED INITIATIVE

DEQ LOUISIANA

LOUISIANA Office of COMMUNITY DEVELOPMENT

GRANTOR/ COLLABORATOR

NOAA — National Oceanic and Atmospheric Administration — U.S. Department of Commerce

TEAM LEAD

GCRPC

PROJECT TEAM

LSU

LSU AgCenter — Research · Extension · Teaching

Pontchartrain Conservancy

Background

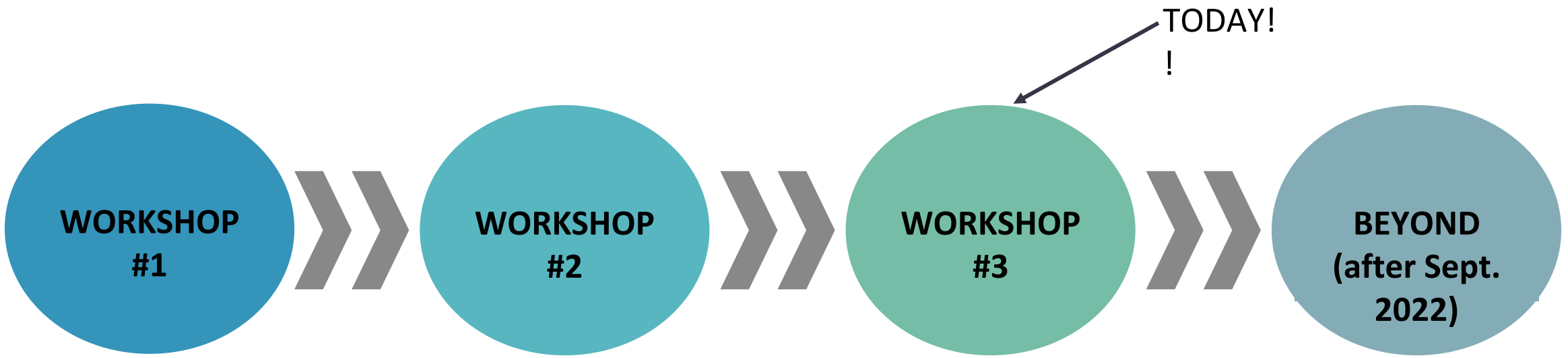
- **Project title: Incorporating co-benefits and costs to coastal hazard mitigation decision making**

- **Purpose:** Research and develop cost-benefit framework for watershed management that will inform and reduce uncertainties during multi-criteria LWI project selection

- **Deliverable:** Plan to the benefit of LWI that may be able to be utilized for a second round of funding

- **The need that we're trying to meet:** equity and natural function aren't captured that well in benefit cost analysis.
  - With our existing tools we value higher-value neighborhoods higher, lower-value neighborhoods lower. This drives where we see projects designed and implemented. The full range of costs and benefits to LMI neighborhoods isn't captured.
  - With our existing tools we don't capture the full range of costs and benefits to natural function. For example, a gray infrastructure project may have negative impacts to water quality and ecosystem health that aren't captured in current tools.

Workshop roadmap



Discuss potential approaches

Focus in on draft framework

Discuss components of the final plan

Utilize final planning document for additional funding to develop the approach

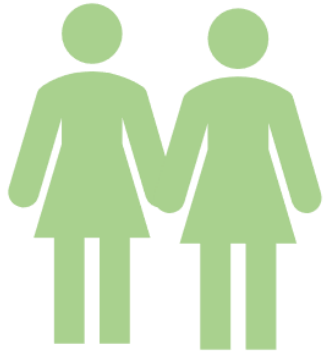
Why equity matters, ability to recover

FAMILY A

- Elderly couple
- Fixed income
- Differently abled
- No flood insurance

1-year post event

- Living in partially rebuilt house
- Took on additional debt
- Structure does not meet accessibility needs



FAMILY B

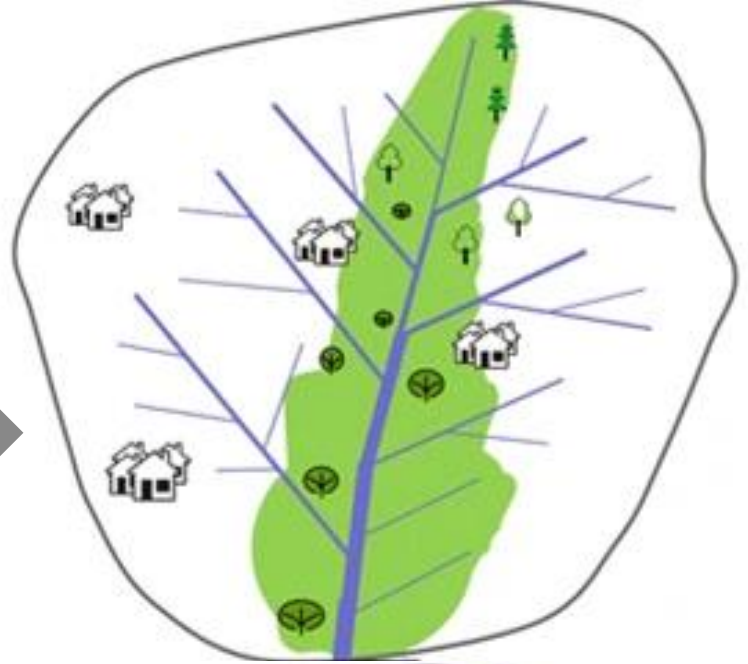
- Dual income, no kids
- Flood insurance
- Job provided leave for recovery

- Home rebuilt within six months
- Navigated admin/legal systems to receive full benefits

Why natural function matters

Channel Alteration and reduced floodplain area leads to…

- increase outflow velocity of water, increasing likelihood of flooding
- increase surface erosion
- increase transfer of nutrients and pollutants downstream
- reduced potential for self-cleaning of the river



Sustainable development and floodplain preservation leads to…

- decrease outflow velocity of water, decreasing likelihood of flooding
- increase water retention capacity
- reduce surface erosion
- reduce transfer of nutrients and pollutants downstream
- optimize potential for self-cleaning of the river

Image and text reference - Kiedrzynska et al., 2015

Recap from the previous meeting

What we did and learned:

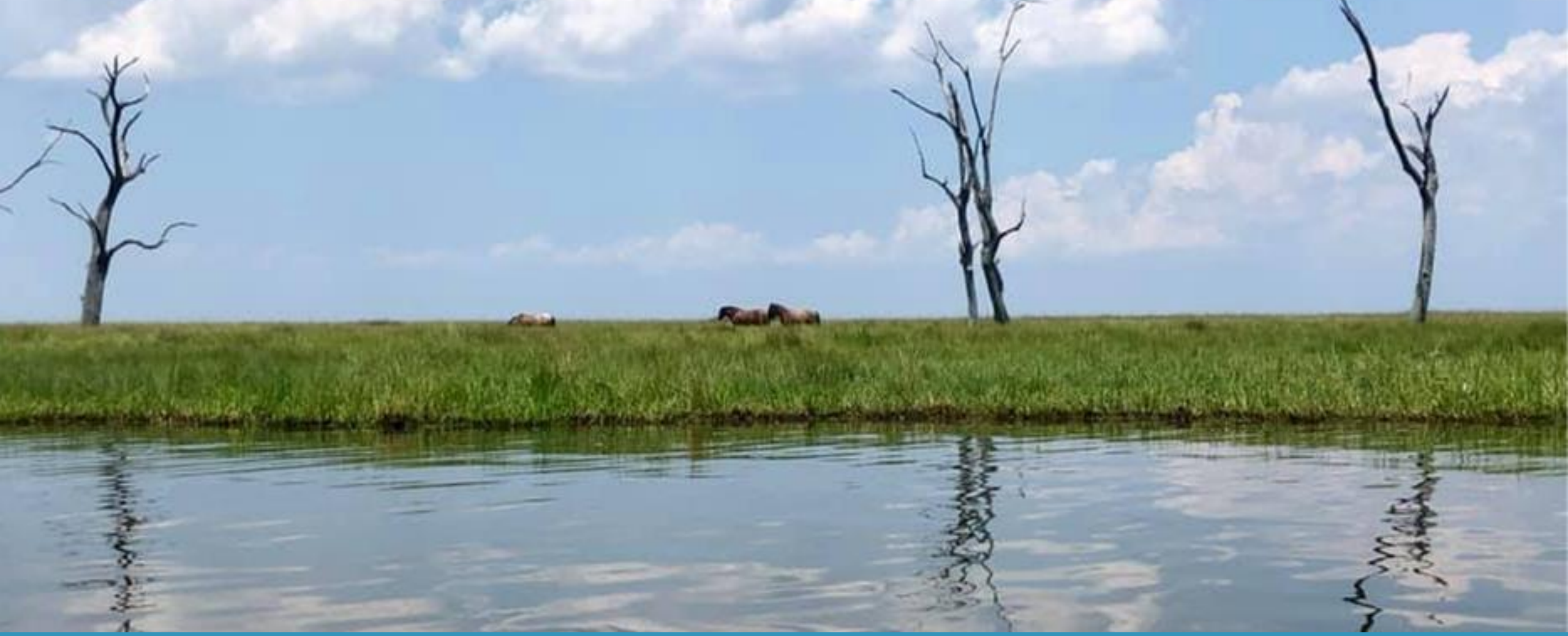
- Introduced an idea for a BCA framework
- Provided two example scenarios to get feedback on the framework
- Applying the framework in a real world context would require outreach and education and a more cohesive way of demonstrating costs and benefits that expands on the goal of reducing flood risk among other things

Points of feedback we're addressing (hopefully):

- Examples of quantified data
- More visuals and explanatory material during the meeting rather than in a send ahead
- Fewer, more concise questions in the breakout groups

Expectations for today

- **Get settled with a quick introduction and recap**
- **Introduce new material**
- **Introduce concepts and examples for breakout groups**
- **Breakout groups to discuss examples**
  - **Two groups (one to focus on BCA framework, one to focus on capacity building)**



BCA Framework + capacity building


WESLEY TOWN
INEVAFLOOD RIVER
ISLA "EYE-LAH" TOWN

WESLEY TOWN

WESLEY TOWN		ISLA TOWN
Economic center for the region	vs	Manufacturing + industry center for the region
Median household income: $80,000	$$$ vs $	Median household income: $40,000
Majority white	vs	Majority black
Majority homeowners	vs	Majority renters
Population: 40,000	vs	Population: 20,000

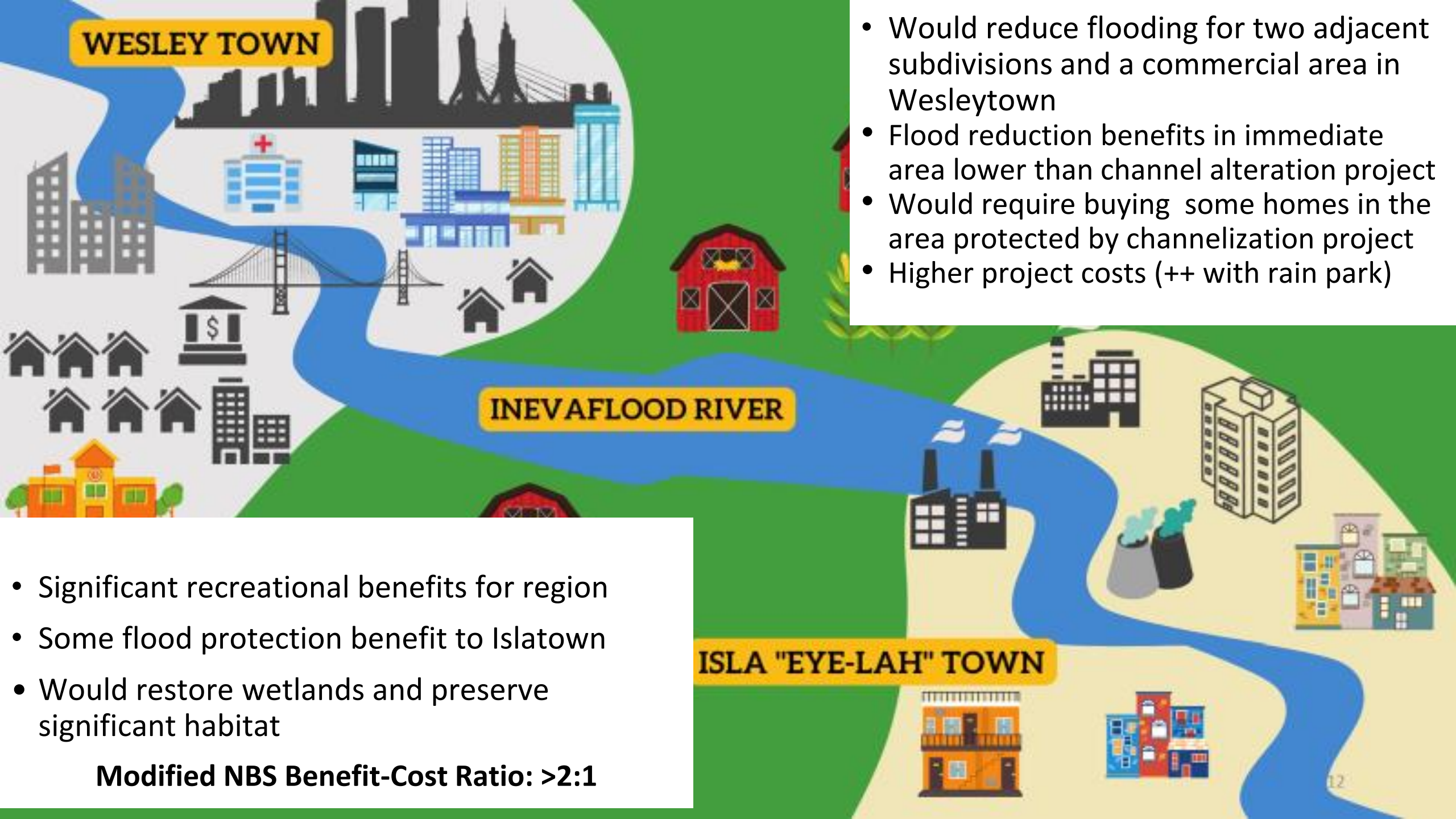
CHANNEL ALTERATION

- Scope
  - Dredging approximately 0.5 mile of channel
  - Clearing and snagging approximately 3 miles
  - Channel Enlargement over 2 miles
  - Channel Lining on 0.5 miles
  - Rip rap (reinforced embankments) on 1.5 miles

Status Quo Benefit-Cost Ratio: 3:1

- Significantly reduce flooding for two adjacent subdivisions and a commercial area in Wesleytown
- Model does not provide data on effects to Islatown, but project would increase peak flow downstream
- Negative effects on habitat and water quality in both Wesley Town and Isla Town

Modified Channelization Benefit-Cost Ratio: <3:1

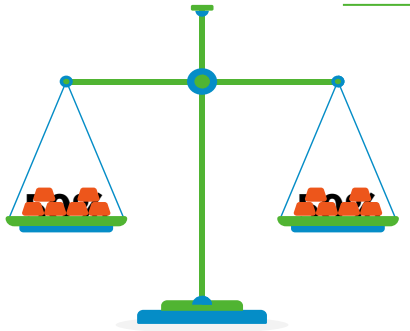


- Would reduce flooding for two adjacent subdivisions and a commercial area in Wesleytown
- Flood reduction benefits in immediate area lower than channel alteration project
- Would require buying some homes in the area protected by channelization project
- Higher project costs (++ with rain park)

- Significant recreational benefits for region
- Some flood protection benefit to Islatown
- Would restore wetlands and preserve significant habitat

Modified NBS Benefit-Cost Ratio: >2:1

How to reduce uncertainties about project selection incorporating a more accurate BCR?



Balanced Mitigation in Coastal Watersheds

-Accounts for Downstream Consequences (+ -) of Projects

-Fairly values environmental harms and benefits

-Balances the greater vulnerability of certain communities

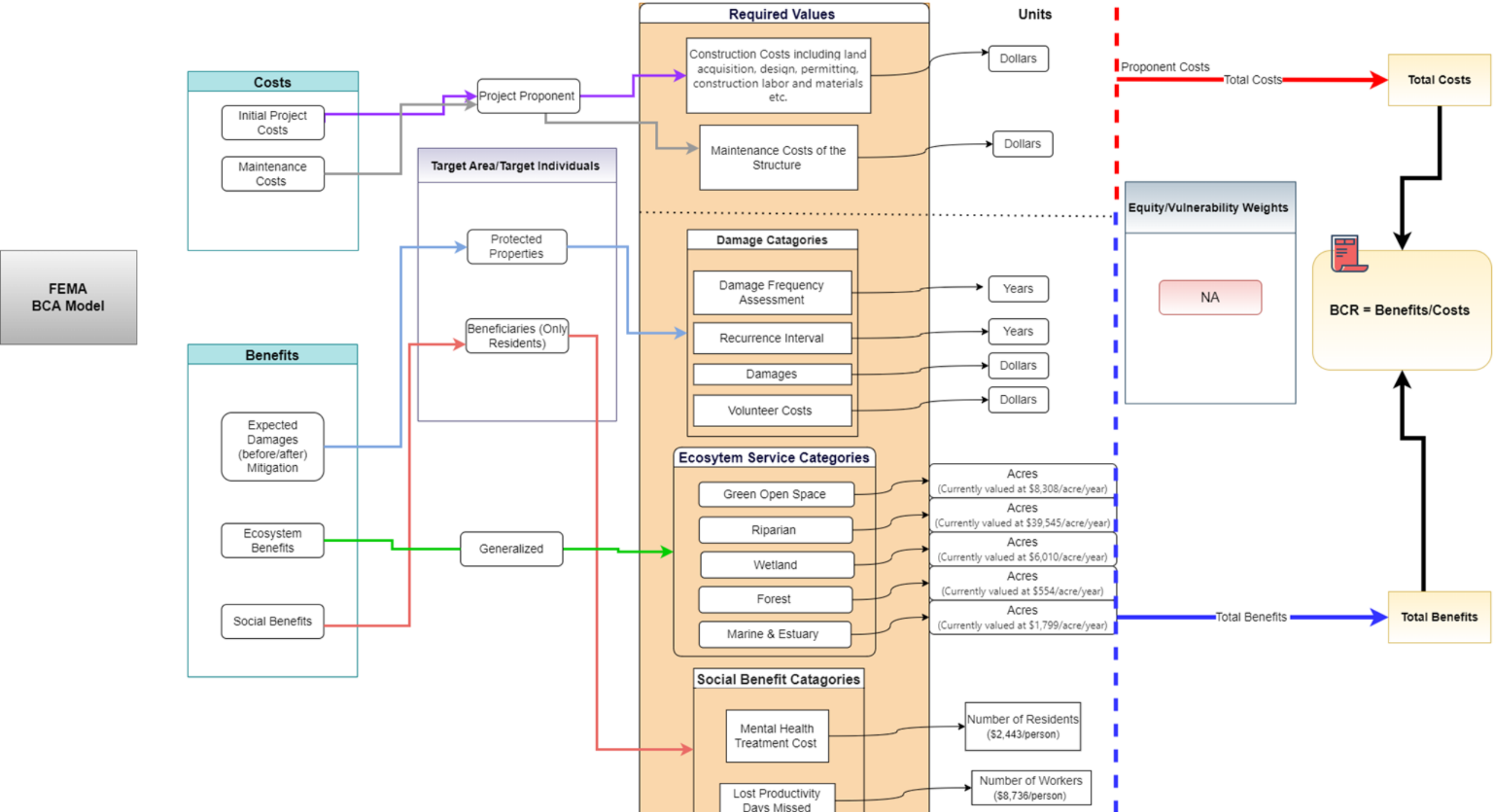
How do current BCA tools address these consequences?

Current BCA Tools

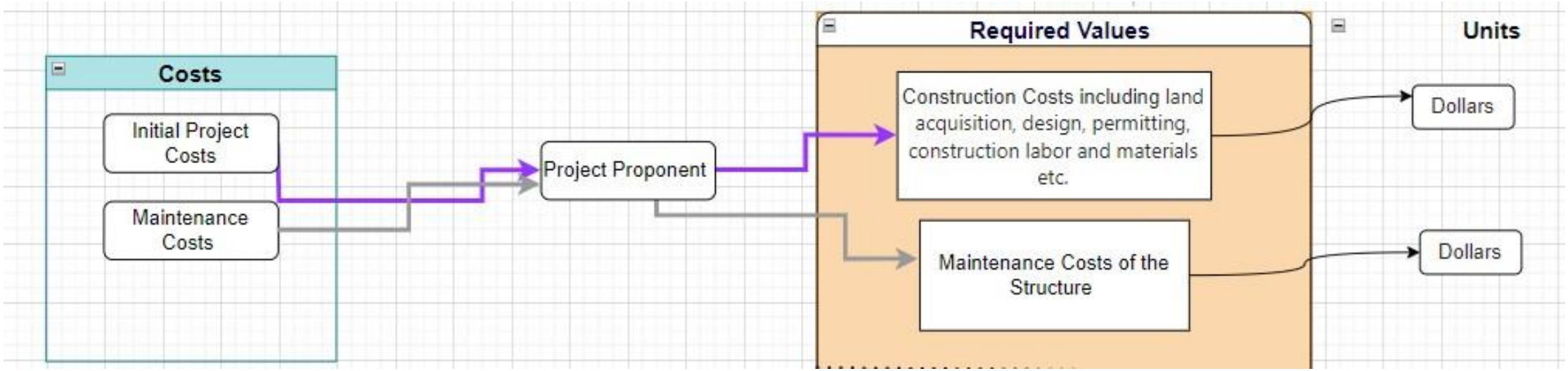
-Do not include downstream impacts (externalities)

-Has limited ecosystem service benefits and does not monetize harms to the environment

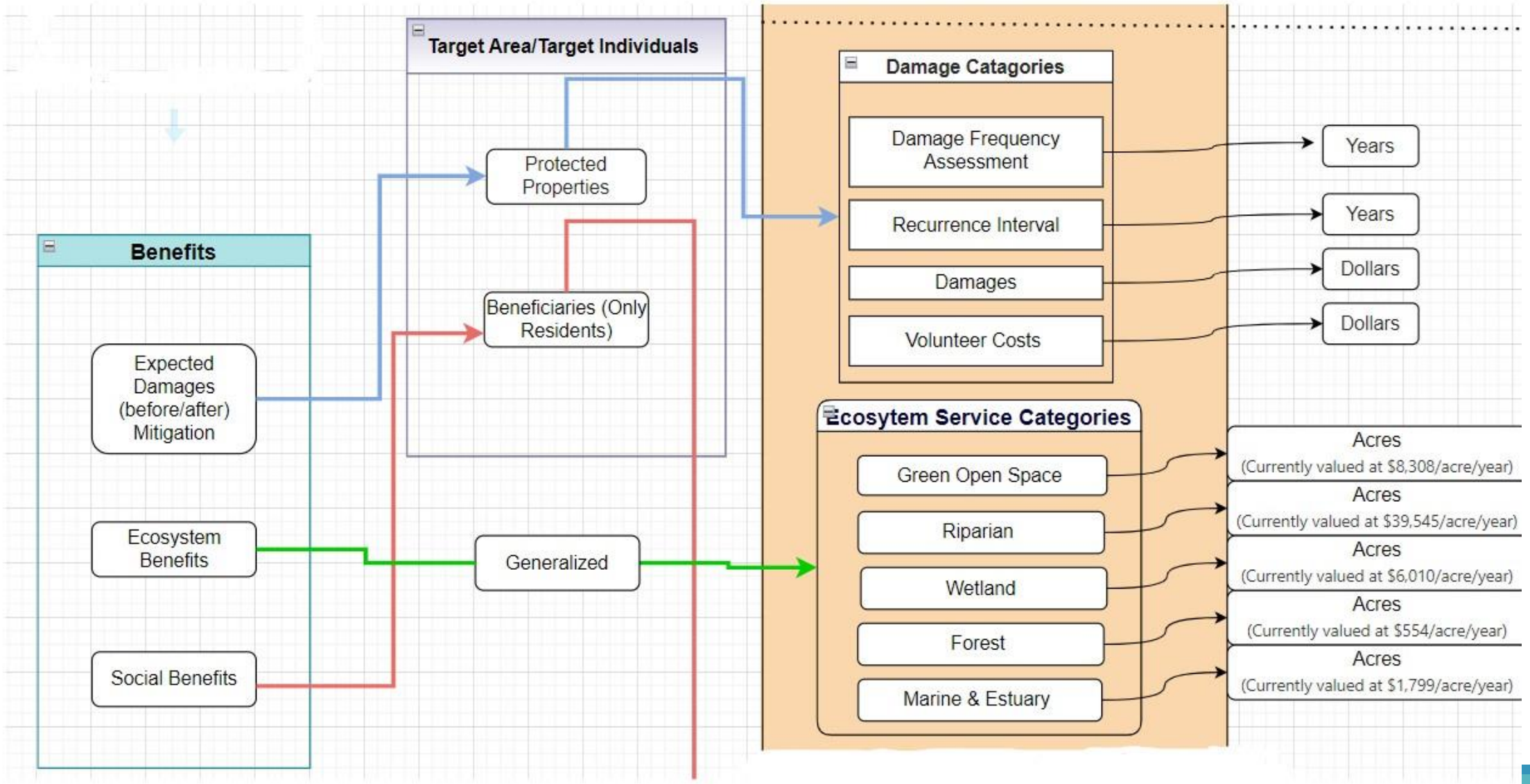
-Does not include ways to balance vulnerability and may be biased to areas with more valuable and larger properties


FEMA
BCA Model
Costs
Initial Project Costs
Maintenance Costs
Project Proponent
Target Area/Target Individuals
Protected Properties
Beneficiaries (Only Residents)
Benefits
Expected Damages (before/after) Mitigation
Ecosystem Benefits
Social Benefits
Generalized
Required Values
Construction Costs including land acquisition, design, permitting, construction labor and materials etc.
Maintenance Costs of the Structure
Damage Catagories
Damage Frequency Assessment
Recurrence Interval
Damages
Volunteer Costs
Ecosytem Service Categories
Green Open Space
Riparian
Wetland
Forest
Marine & Estuary
Social Benefit Catagories
Mental Health Treatment Cost
Lost Productivity Days Missed
Units
Dollars
Dollars
Years
Years
Dollars
Dollars
Acres (Currently valued at $8,308/acre/year)
Acres (Currently valued at $39,545/acre/year)
Acres (Currently valued at $6,010/acre/year)
Acres (Currently valued at $554/acre/year)
Acres (Currently valued at $1,799/acre/year)
Number of Residents ($2,443/person)
Number of Workers ($8,736/person)
Proponent Costs
Total Costs
Total Costs
Equity/Vulnerability Weights
NA
BCR = Benefits/Costs
Total Benefits
Total Benefits

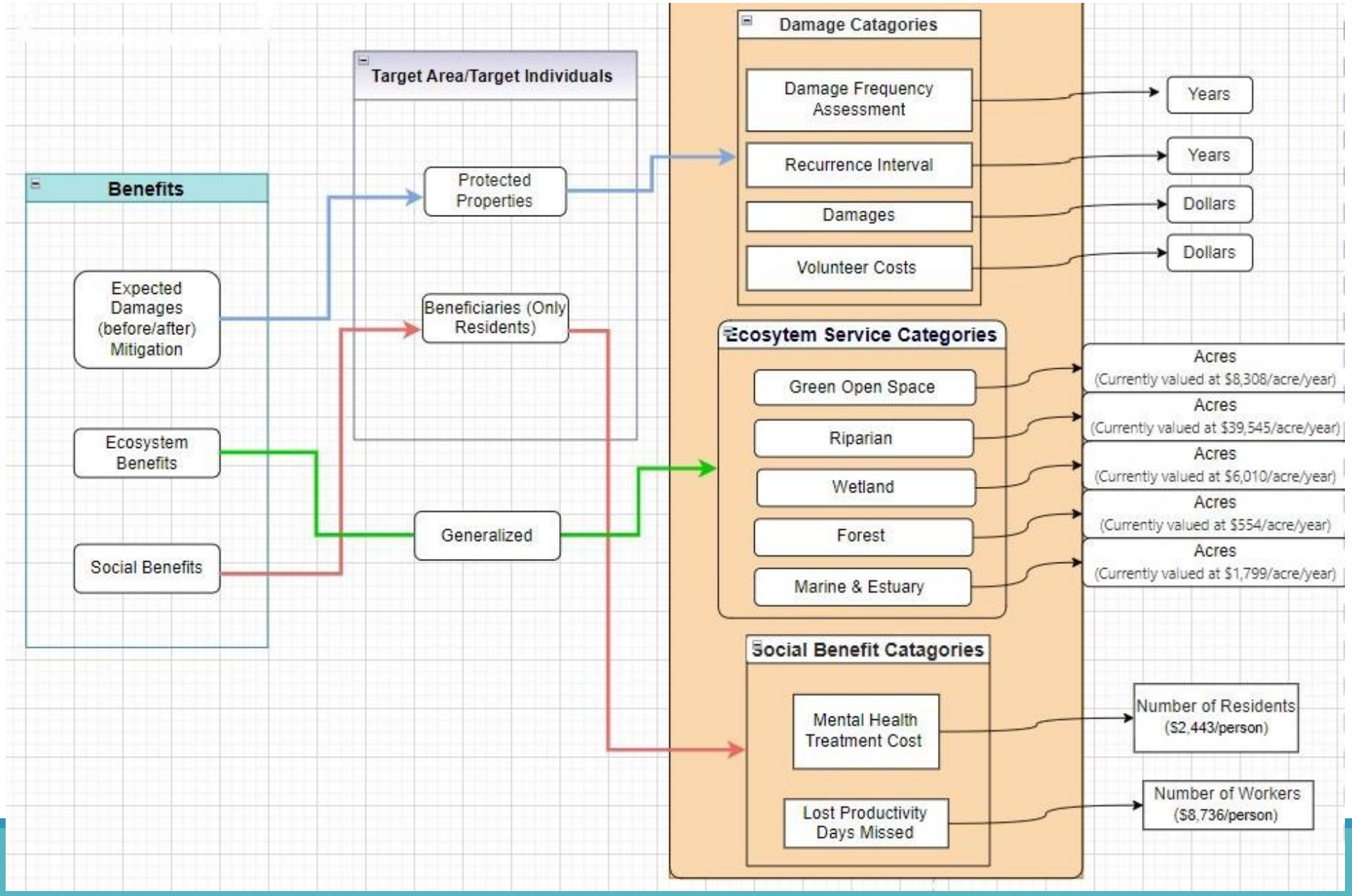
FEMA BCA Toolkit (Project Costs)

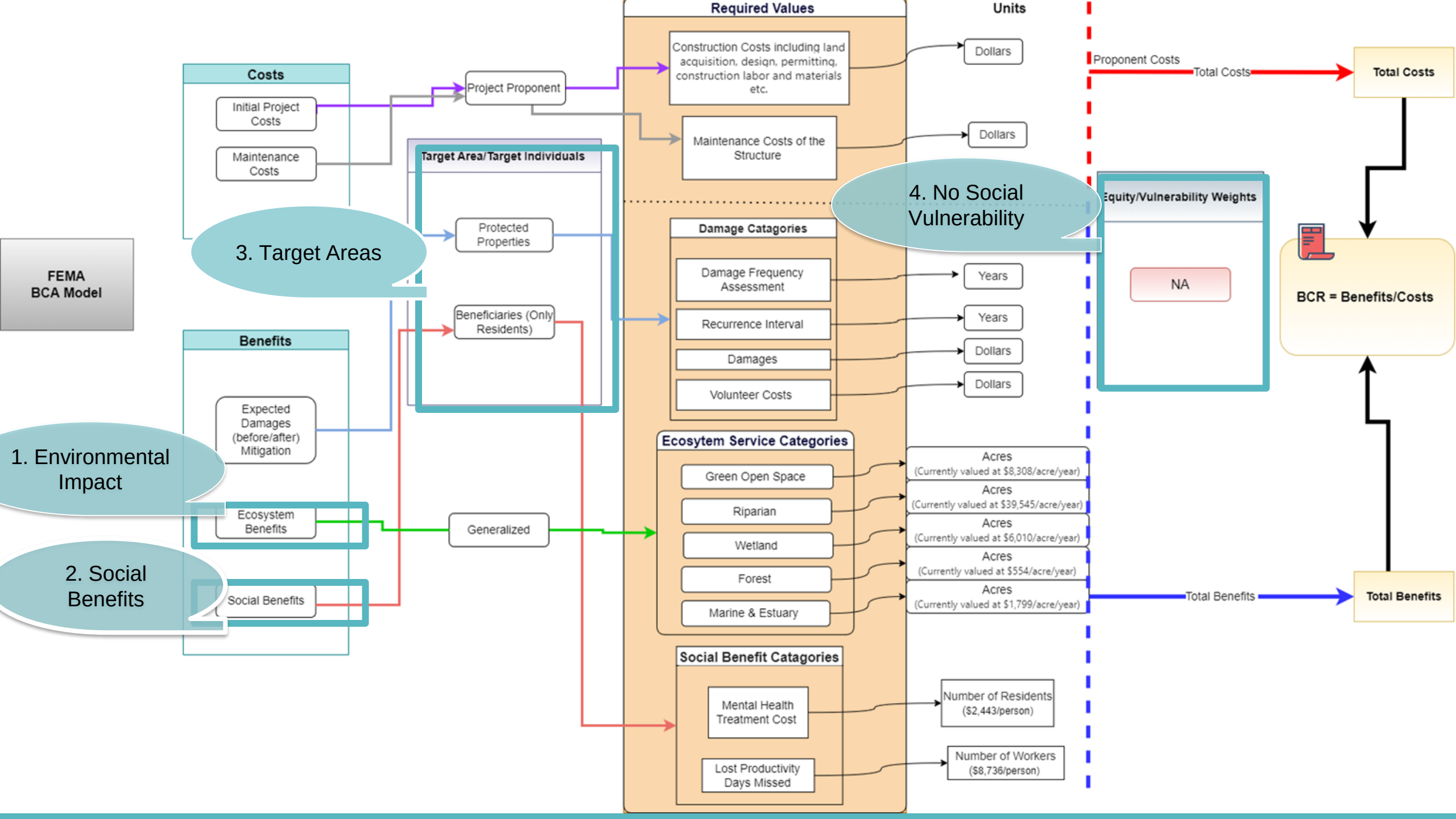


FEMA BCA Toolkit (Ecosystem Benefits)



FEMA BCA Toolkit (Social Benefits)




FEMA
BCA Model
Costs
Initial Project Costs
Maintenance Costs
Project Proponent
Target Area/Target Individuals
Protected Properties
Beneficiaries (Only Residents)
3. Target Areas
Benefits
Expected Damages (before/after) Mitigation
1. Environmental Impact
Ecosystem Benefits
Generalized
2. Social Benefits
Social Benefits
Required Values
Construction Costs including land acquisition, design, permitting, construction labor and materials etc.
Maintenance Costs of the Structure
Damage Catagories
Damage Frequency Assessment
Recurrence Interval
Damages
Volunteer Costs
Ecosytem Service Categories
Green Open Space
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Wetland
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Acres (Currently valued at $554/acre/year)
Acres (Currently valued at $1,799/acre/year)
Number of Residents ($2,443/person)
Number of Workers ($8,736/person)
4. No Social Vulnerability
Equity/Vulnerability Weights
NA
Proponent Costs
Total Costs
Total Costs
BCR = Benefits/Costs
Total Benefits
Total Benefits

Balanced Mitigation in Coastal Watersheds

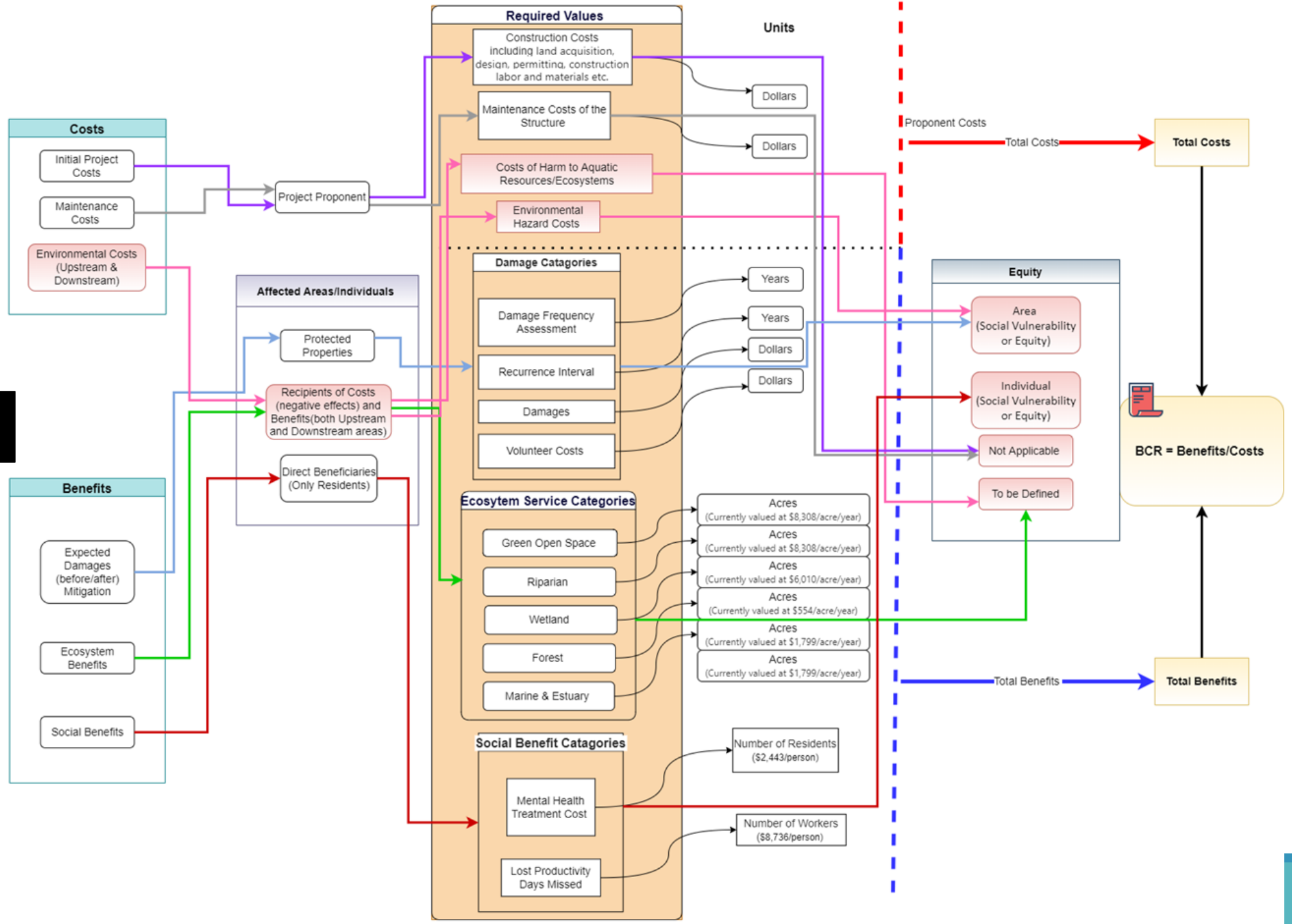
-Accounts for Downstream Consequences (+ -) of Projects

-Fairly values environmental harms and benefits

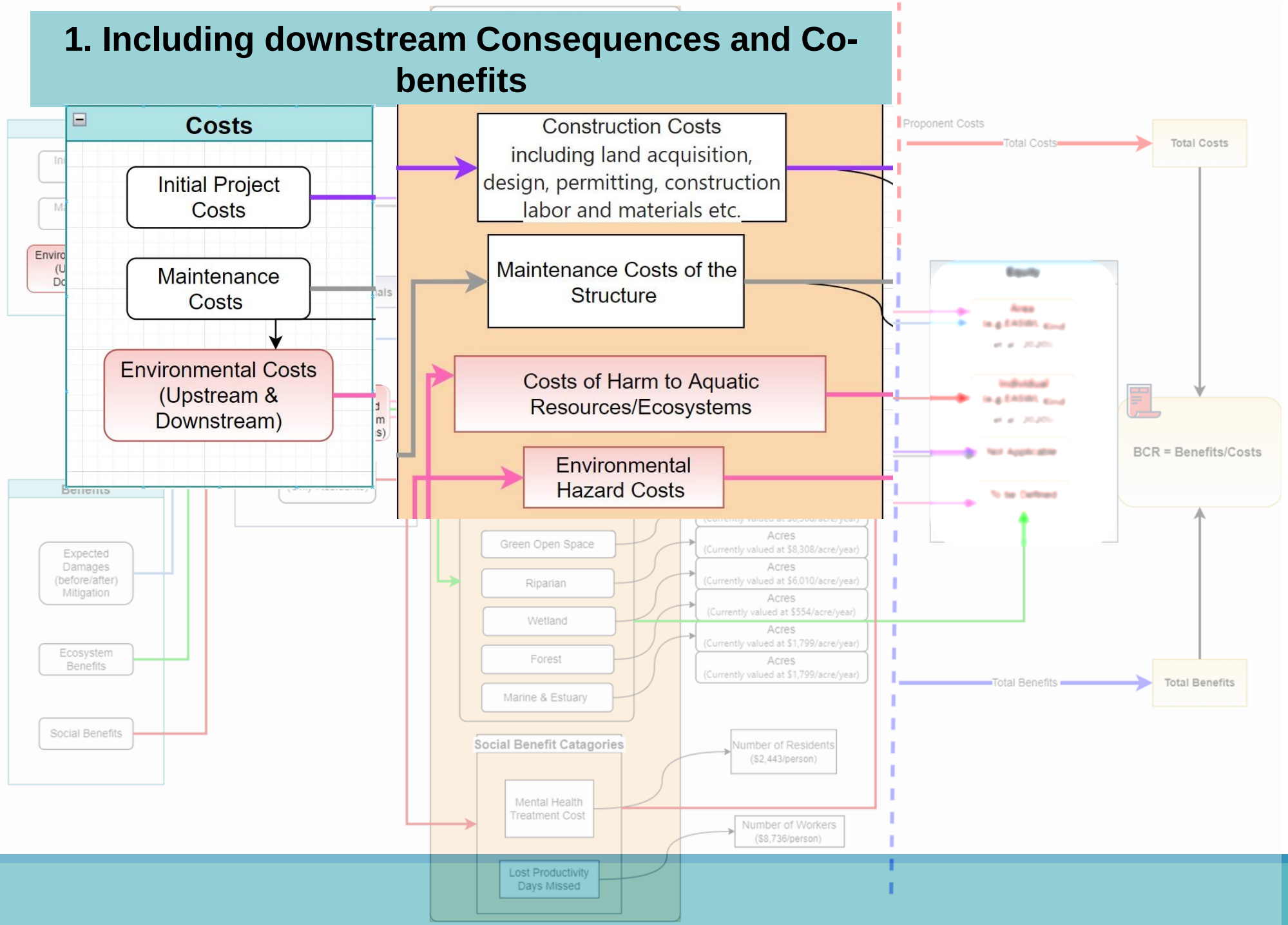
-Balances the greater vulnerability of certain communities

How does current framework address these consequences?

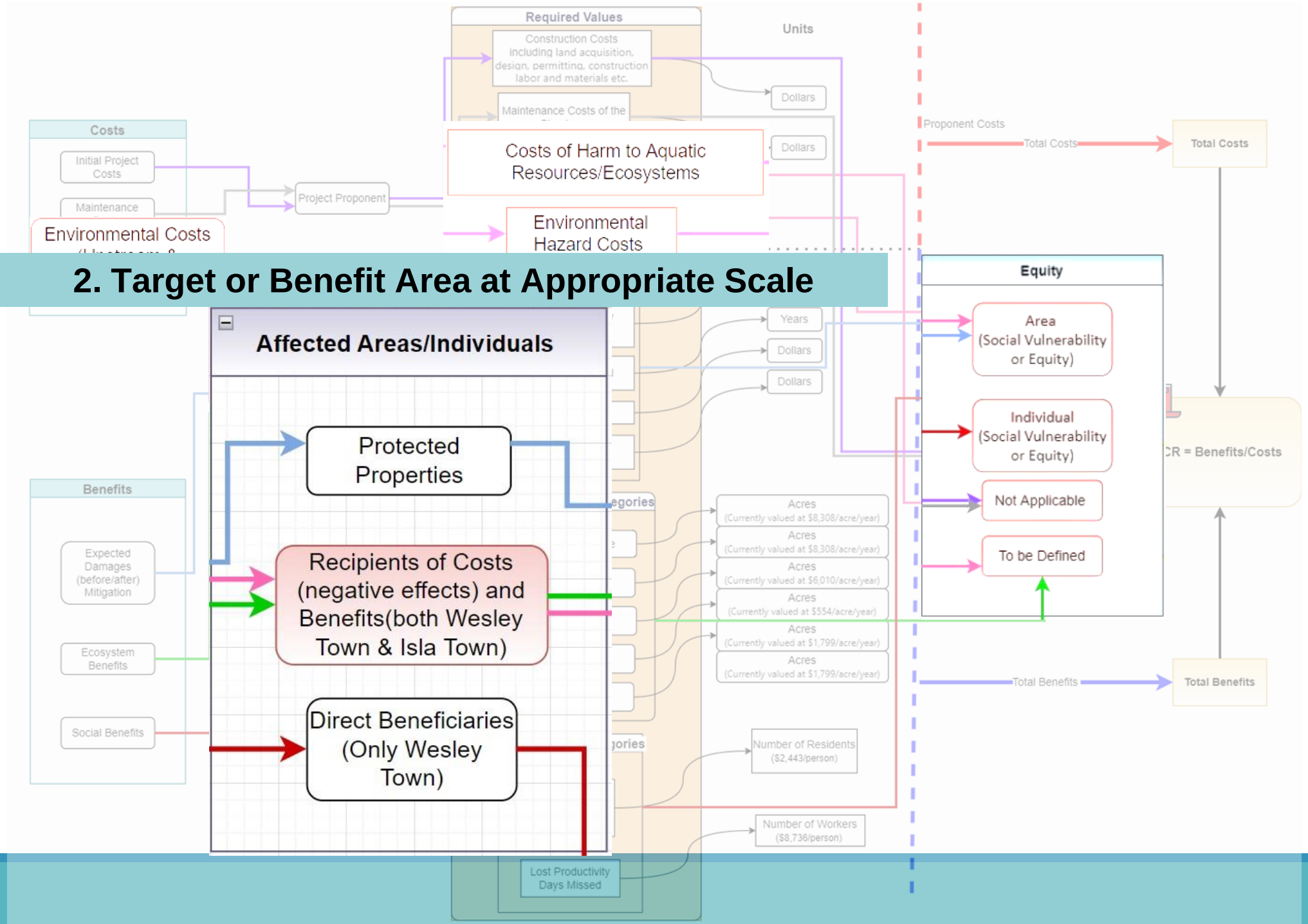
Vulnerability/Equity Weighted Value

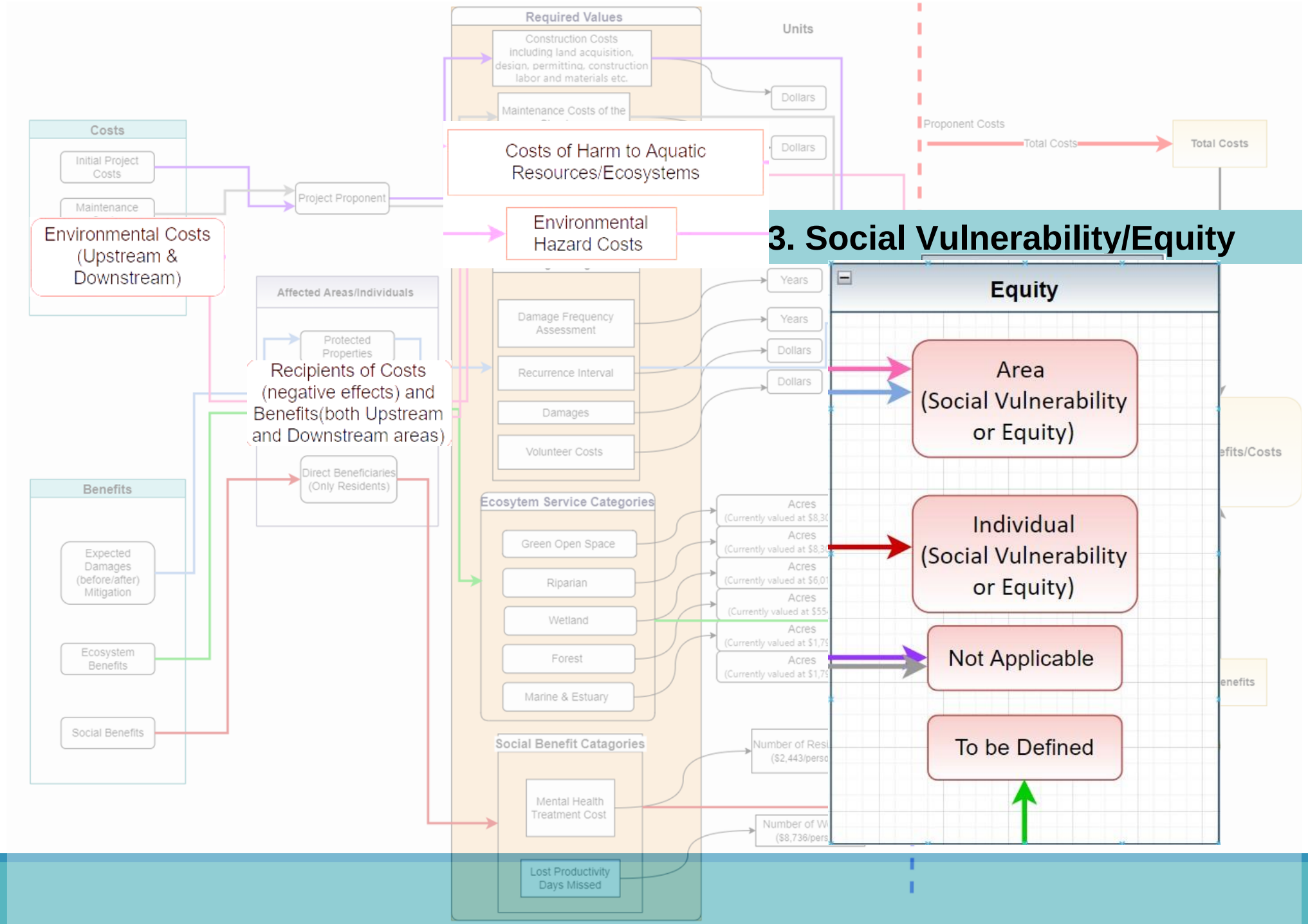


1. Including downstream Consequences and Co-benefits



2. Target or Benefit Area at Appropriate Scale




Required Values
Units
Construction Costs including land acquisition, design, permitting, construction labor and materials etc.
Maintenance Costs of the
Dollars
Dollars
Costs
Initial Project Costs
Maintenance
Project Proponent
Costs of Harm to Aquatic Resources/Ecosystems
Environmental Hazard Costs
Environmental Costs (Upstream & Downstream)
Proponent Costs
Total Costs
Total Costs
3. Social Vulnerability/Equity
Affected Areas/Individuals
Protected Properties
Recipients of Costs (negative effects) and Benefits(both Upstream and Downstream areas)
Direct Beneficiaries (Only Residents)
Damage Frequency Assessment
Recurrence Interval
Damages
Volunteer Costs
Years
Years
Dollars
Dollars
Equity
Area (Social Vulnerability or Equity)
Individual (Social Vulnerability or Equity)
Not Applicable
To be Defined
Benefits
Expected Damages (before/after) Mitigation
Ecosystem Benefits
Social Benefits
Ecosytem Service Categories
Green Open Space
Riparian
Wetland
Forest
Marine & Estuary
Acres
Acres
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Mental Health Treatment Cost
Lost Productivity Days Missed
Number of Resi
($2,443/perso
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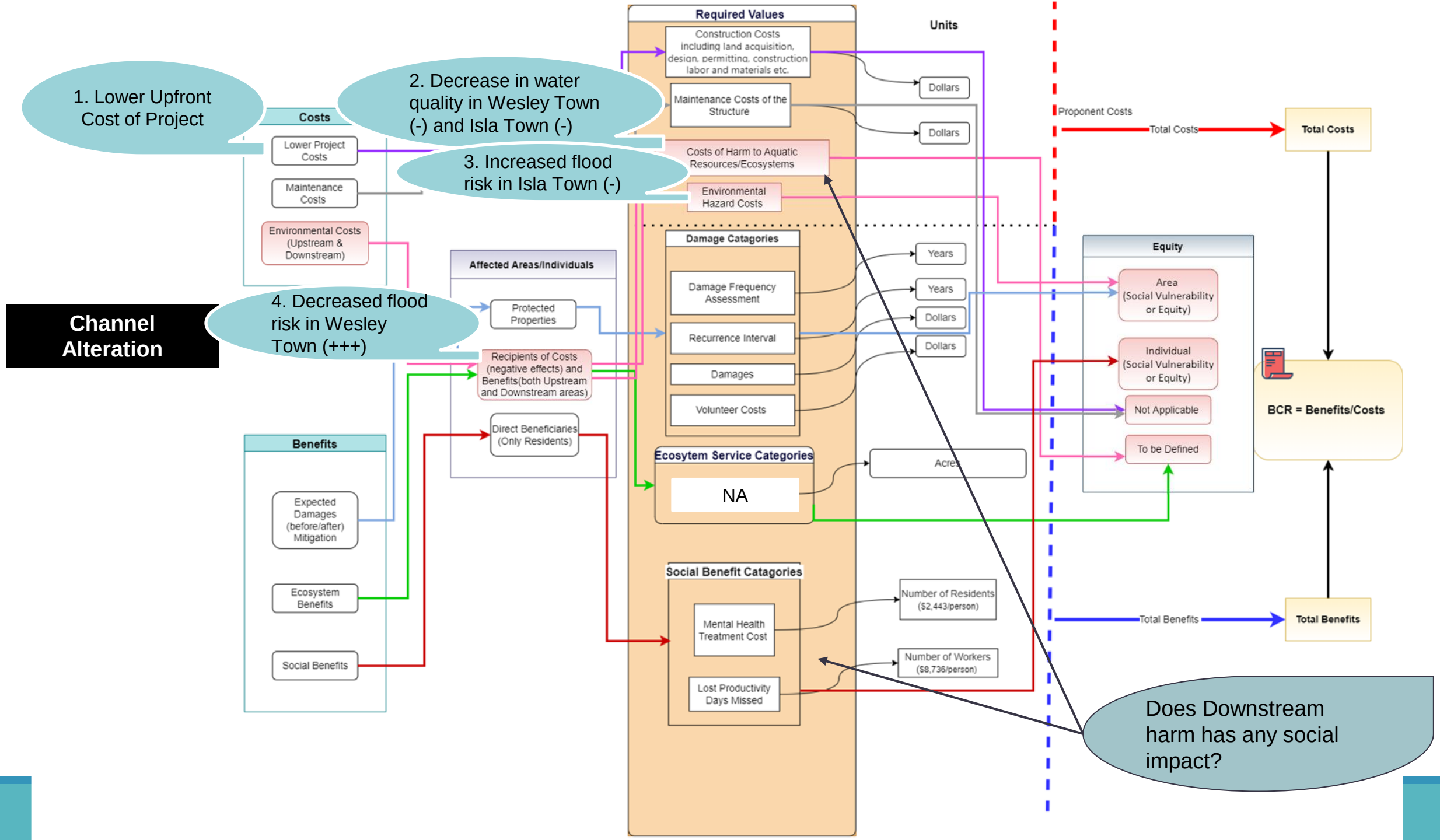
($8,736/pers


Channel Alteration
1. Lower Upfront Cost of Project
2. Decrease in water quality in Wesley Town (-) and Isla Town (-)
3. Increased flood risk in Isla Town (-)
4. Decreased flood risk in Wesley Town (+++)
Costs
Lower Project Costs
Maintenance Costs
Environmental Costs (Upstream & Downstream)
Affected Areas/Individuals
Protected Properties
Recipients of Costs (negative effects) and Benefits(both Upstream and Downstream areas)
Direct Beneficiaries (Only Residents)
Benefits
Expected Damages (before/after) Mitigation
Ecosystem Benefits
Social Benefits
Required Values
Construction Costs including land acquisition, design, permitting, construction labor and materials etc.
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Costs of Harm to Aquatic Resources/Ecosystems
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Damage Catagories
Damage Frequency Assessment
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Ecosytem Service Categories
NA
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Years
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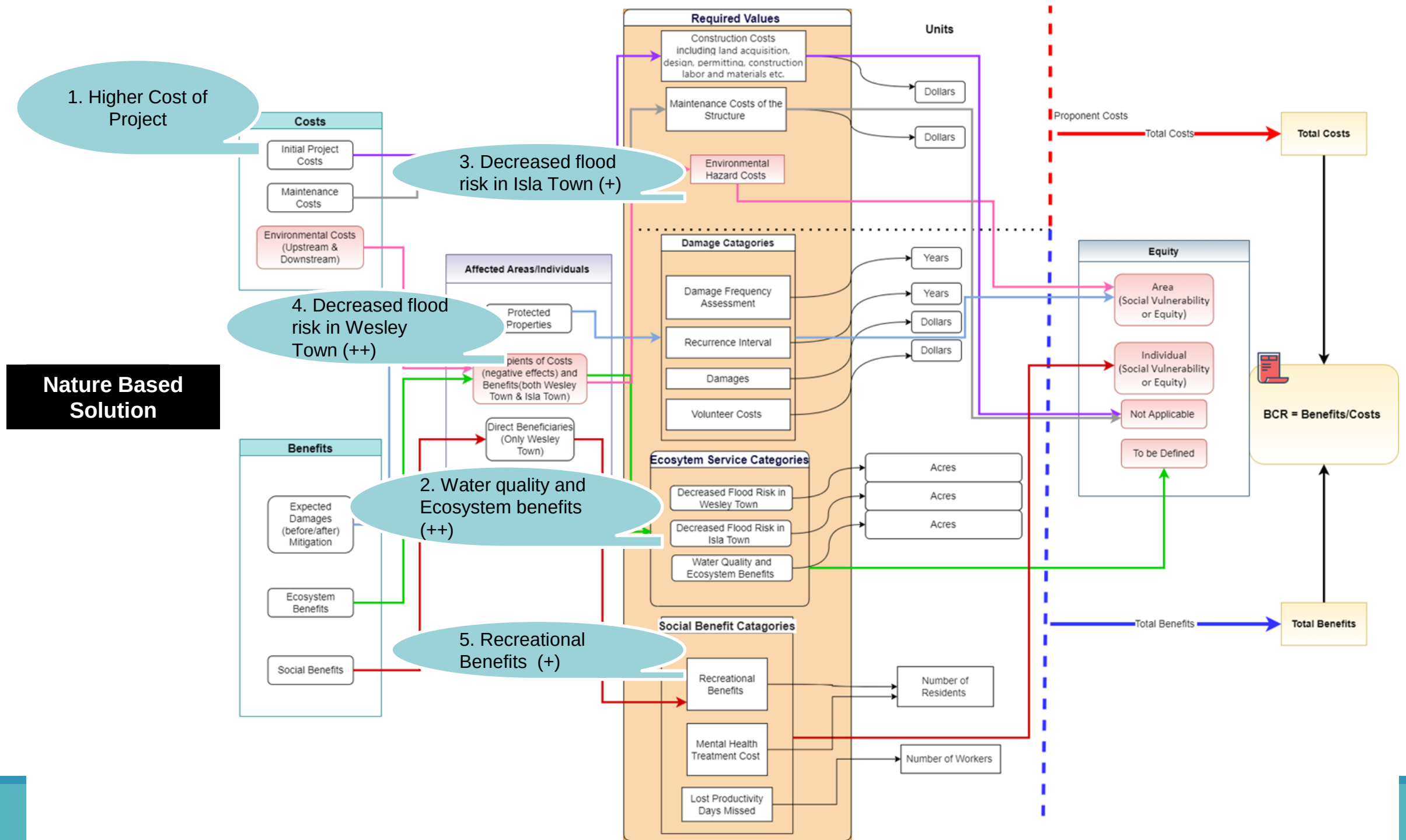
Acres
Number of Residents ($2,443/person)
Number of Workers ($8,736/person)
Proponent Costs
Total Costs
Total Costs
Equity
Area (Social Vulnerability or Equity)
Individual (Social Vulnerability or Equity)
Not Applicable
To be Defined
BCR = Benefits/Costs
Total Benefits
Total Benefits
Does Downstream harm has any social impact?


1. Higher Cost of Project
Nature Based Solution
Costs
Initial Project Costs
Maintenance Costs
Environmental Costs (Upstream & Downstream)
3. Decreased flood risk in Isla Town (+)
4. Decreased flood risk in Wesley Town (++)
Affected Areas/Individuals
Protected Properties
pients of Costs (negative effects) and Benefits(both Wesley Town & Isla Town)
Direct Beneficiaries (Only Wesley Town)
Benefits
Expected Damages (before/after) Mitigation
Ecosystem Benefits
Social Benefits
2. Water quality and Ecosystem benefits (++)
5. Recreational Benefits (+)
Required Values
Construction Costs including land acquisition, design, permitting, construction labor and materials etc.
Maintenance Costs of the Structure
Environmental Hazard Costs
Damage Catagories
Damage Frequency Assessment
Recurrence Interval
Damages
Volunteer Costs
Ecosytem Service Categories
Decreased Flood Risk in Wesley Town
Decreased Flood Risk in Isla Town
Water Quality and Ecosystem Benefits
Social Benefit Catagories
Recreational Benefits
Mental Health Treatment Cost
Lost Productivity Days Missed
Units
Dollars
Dollars
Years
Years
Dollars
Dollars
Acres
Acres
Acres
Number of Residents
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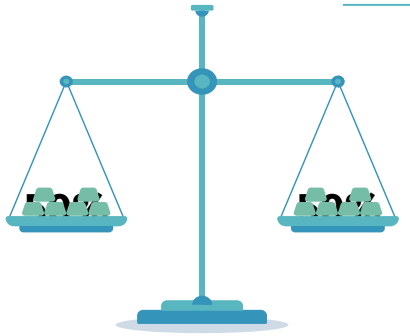
Proponent Costs
Total Costs
Total Costs
Equity
Area (Social Vulnerability or Equity)
Individual (Social Vulnerability or Equity)
Not Applicable
To be Defined
BCR = Benefits/Costs
Total Benefits
Total Benefits

How to reduce uncertainties about project selection incorporating a more accurate BCR?



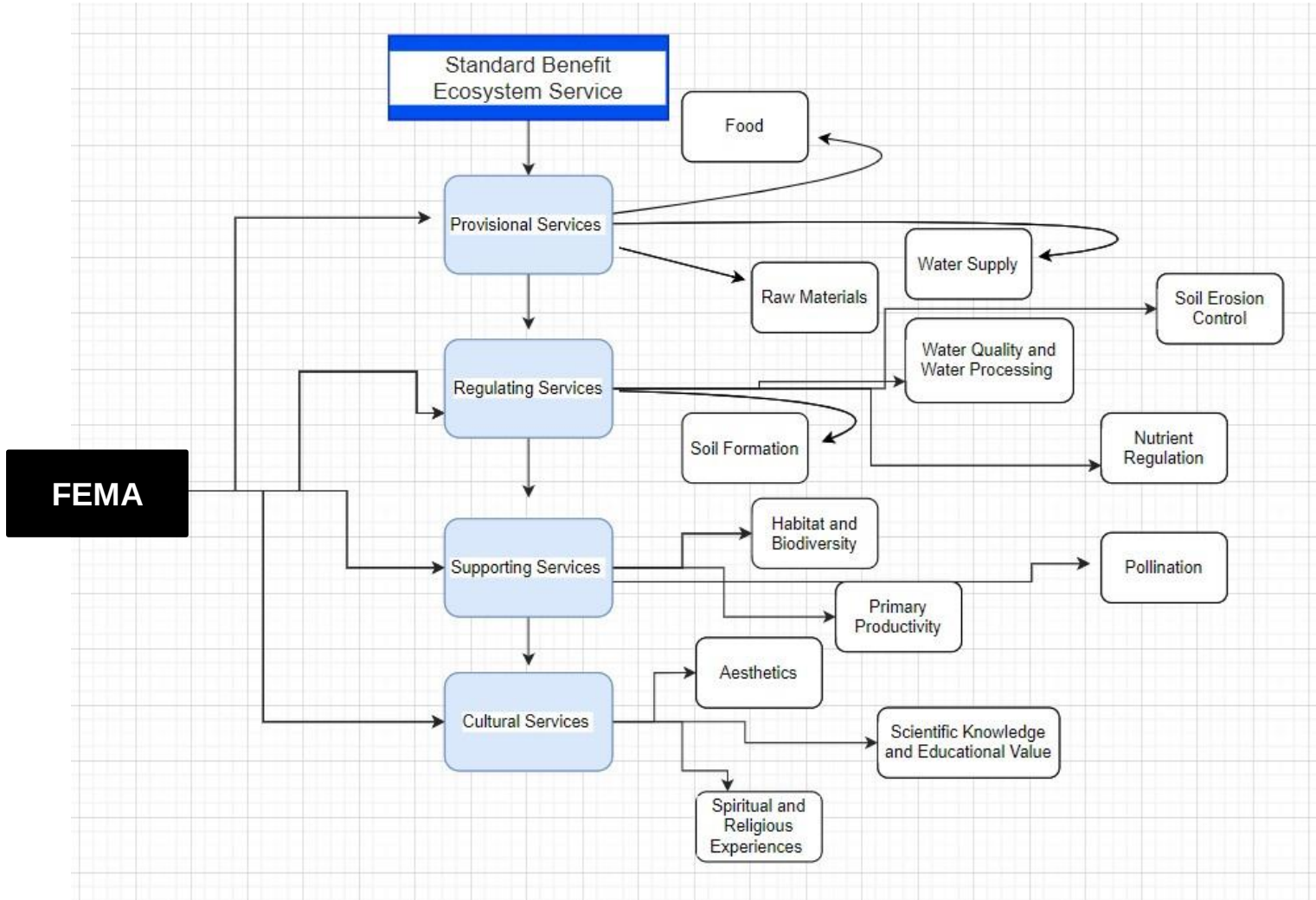
Balanced Mitigation in Coastal Watersheds

-Accounts for Downstream Consequences (+ -) of Projects

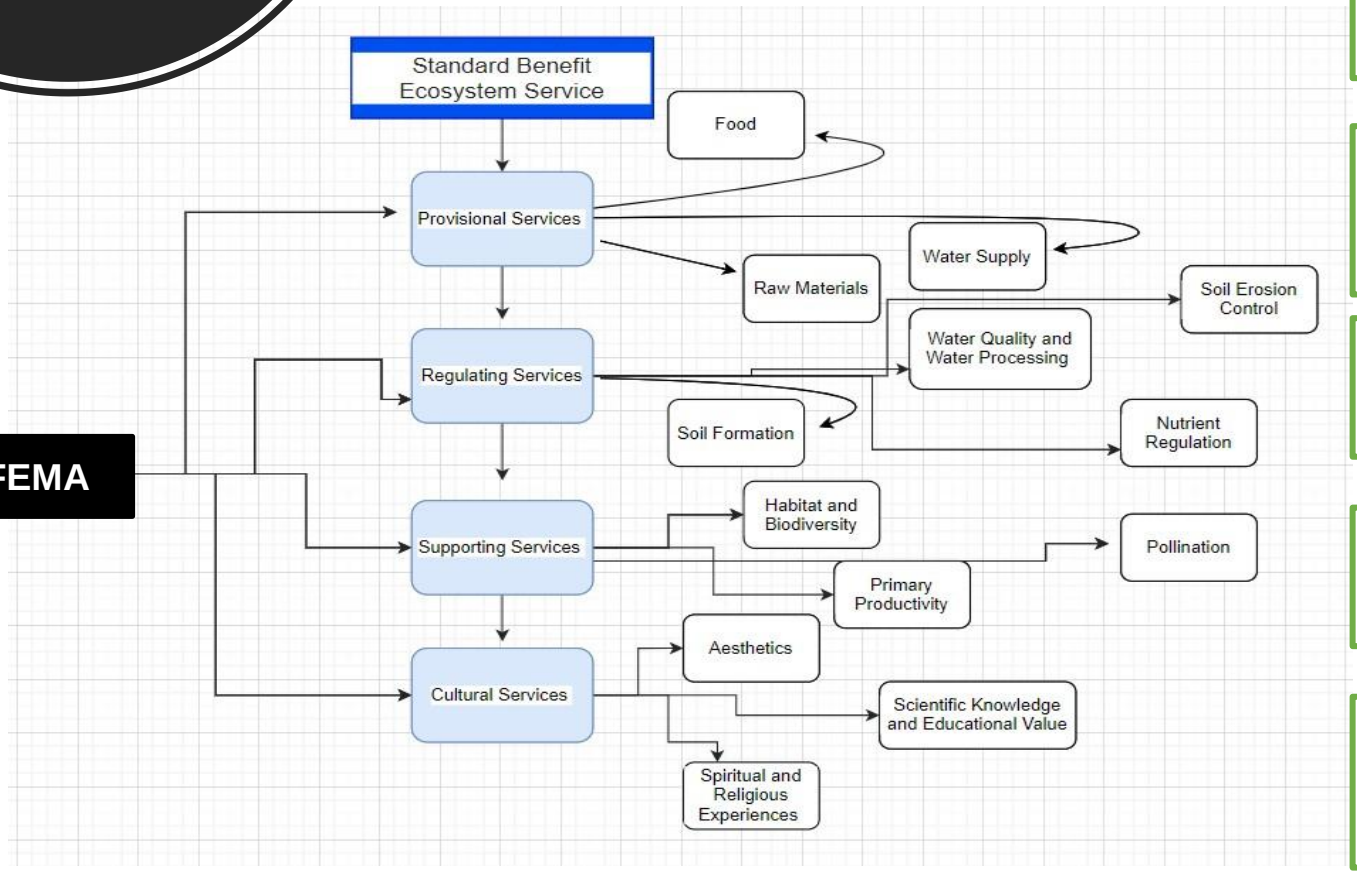
-Fairly values environmental harms and benefits

-Balances the greater vulnerability of certain communities

GEMS Logic Model Applied to FEMA

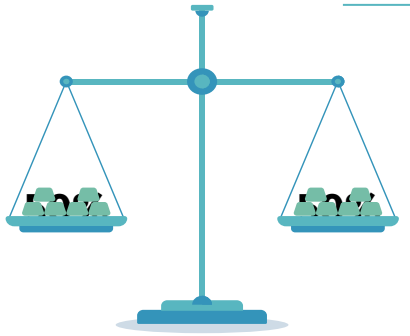


Additional benefit categories? General or Applied to Target Area



- Restoration/Intervention
- Recreation and Tourism
- Local Business
- Fish & Shellfish Harvest
- Water System Cost
- Wildlife Population
- Surface water Quality
- Property Protection (Flooding)
- Property Protection (Erosion)
- Property Value
- Saltwater intrusion
- Greenhouse Gas GHGs
- Ground water Quality

How to reduce uncertainties about project selection incorporating a more accurate BCR?



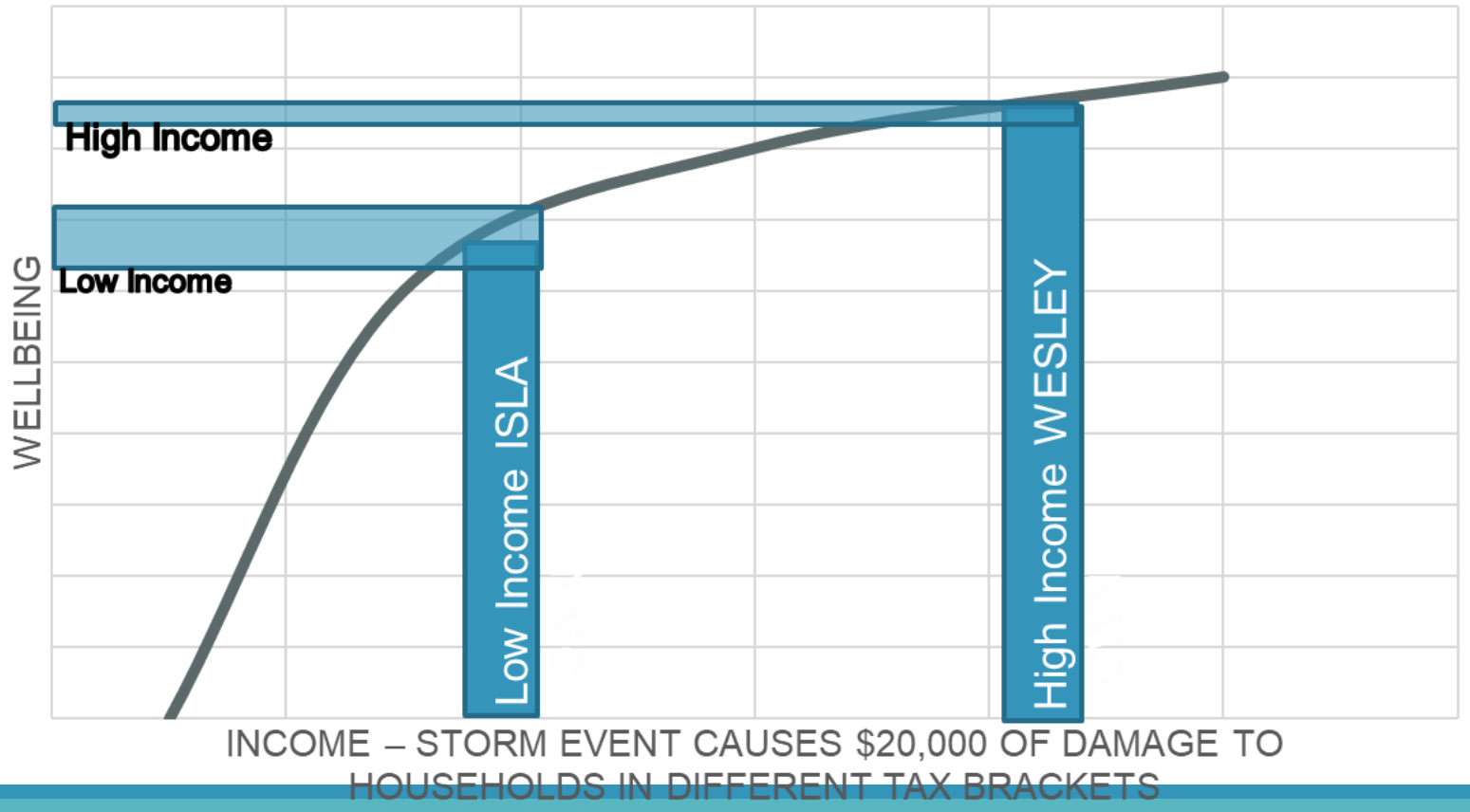
Balanced Mitigation in Coastal Watersheds

-Accounts for Downstream Consequences (+ -) of Projects

-Fairly values environmental harms and benefits

-Balances the greater vulnerability of certain communities

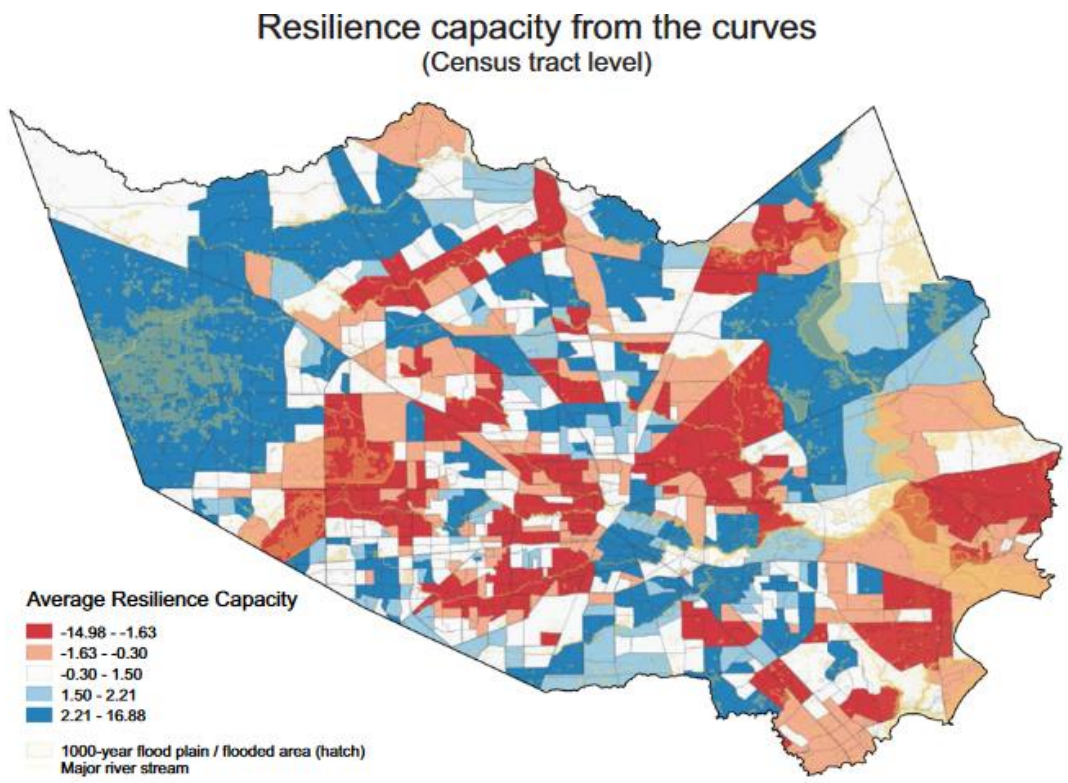
How Much Is A Dollar Worth?



A storm event that caused $20,000 of damage to a low income household is a relatively larger damage to the same physical damages to a wealthier household

Likewise, preventing those damages for lower income house holds has a higher well-being impact

Recovery and Vulnerability Varies by Socio-economics - Resilience Capacity



- $20,000 in flood damage to LMI household is more catastrophic than $20,000 in flood damage to a middle class family
  - Education
  - Employment
  - Housing tenure
  - Health
- Current BCA only includes social impacts in buy-out and elevation projects
- Current BCA values protection of larger structures at higher rates

https://www.nature.com/articles/s41467-021-22160-w.pdf

Social Vulnerability or Equity

Collective/ Community Cost/Benefits

Calculation

$P \times D_{collective}$

Individual/ Social Welfare Cost/Benefits EASWLoss/Benefit

Calculation

$$\textbf{EASWL} = \left(\frac{Yi0}{Yavg}\right)^{\gamma} \times \sum_{0}^{T} \frac{R \times EACL}{(1+d)t}$$

Y_{avg} = *average per capita Income*

$\gamma = Elasticity\ of\ Marginal\ Utility\ of\ Income$

R = Risk Premium Multiplier

EACL = Expected annual consumption Loss

d = Social Discount rate

Health + Injury (VoSL, VoSI, VoSSD)

Calculation

Measured by Statistical Life (Willingness to pay for reduced mortality risks)

Kind et al. 2020

Questions?

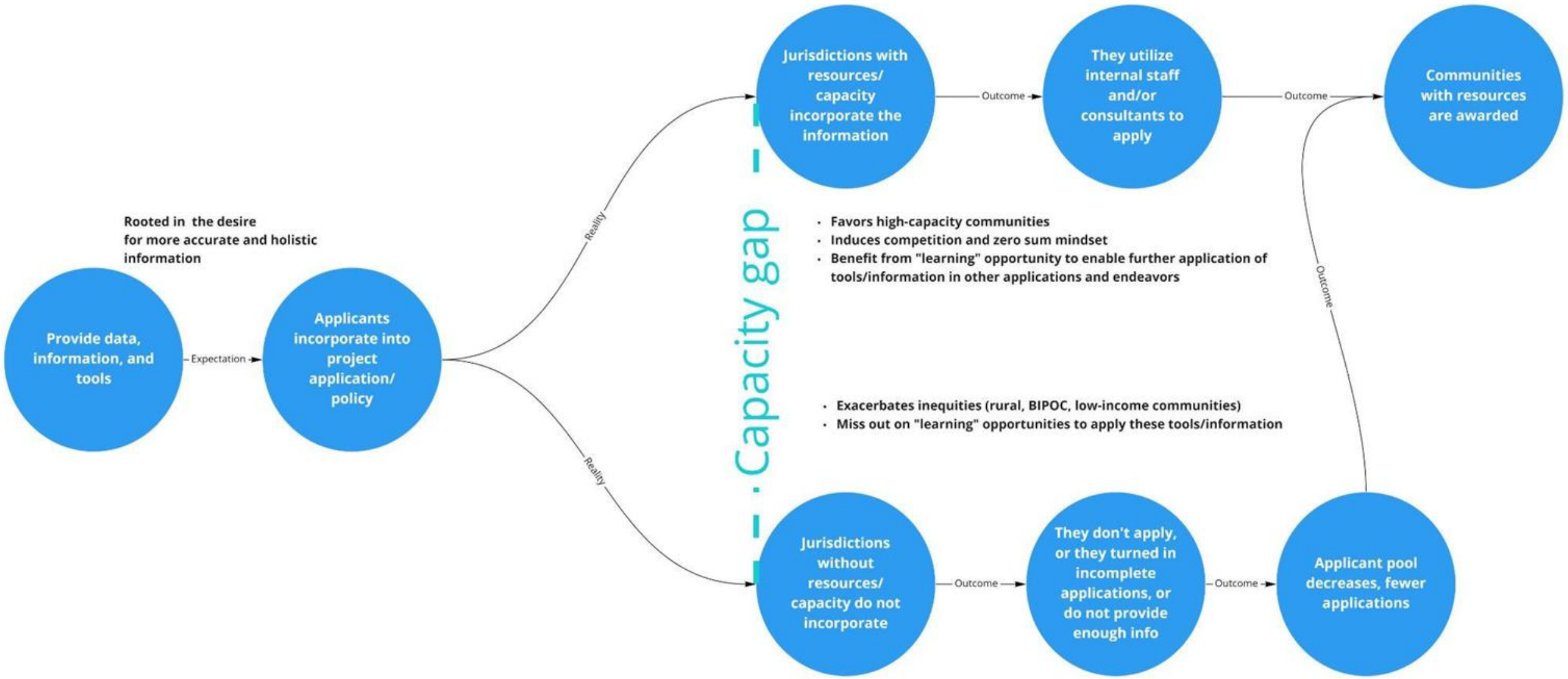
A few key terms…

Distributional equity means fair distribution of resources, benefits, and burdens, and prioritizes resources for communities experiencing the greatest inequities.

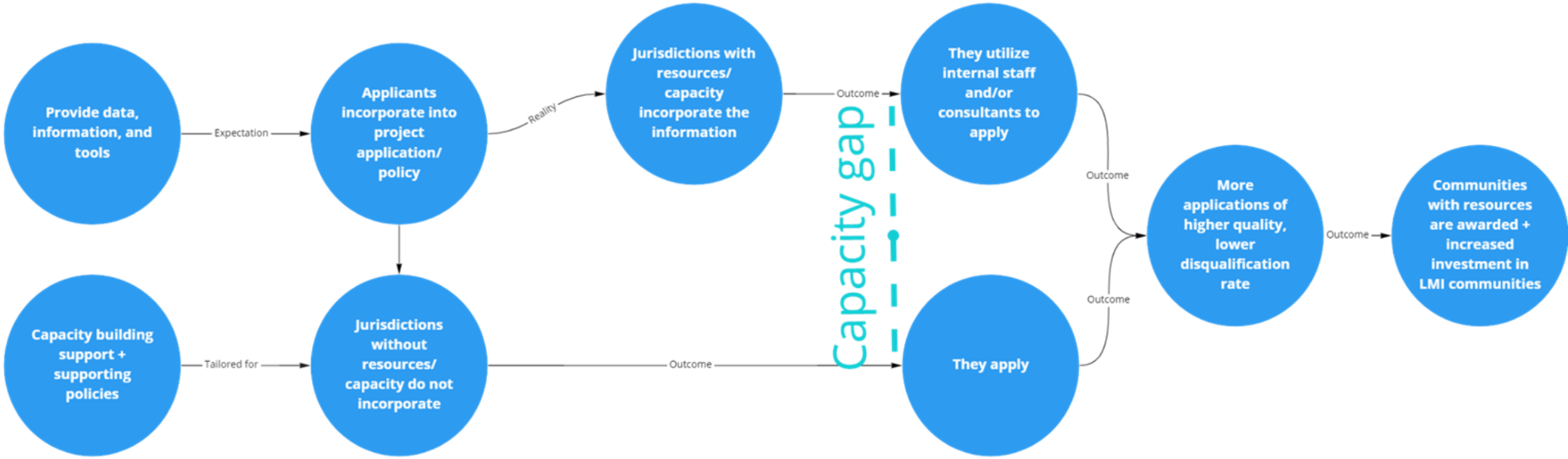
Procedural equity involves decision-making processes— from placement to design, construction, and programming—that are transparent, equitable, and inclusive with regard to who participates, how they are engaged, and how input is valued and applied. It also covers processes inherent in the equitable and just provision of services.

Structural equity addresses underlying structural factors and policies that give rise to inequities in the first place. It makes a commitment to correct past harms and prevent future unintended consequences

Current model



Proposed model



- Policies are geared towards resourcing for underresourced communities
- Shrinks the capacity gap
- Levels the playing field between high and low capacity communities
- All communities benefit from the "learning" opportunity and may be able to compete better in other funding opportunities

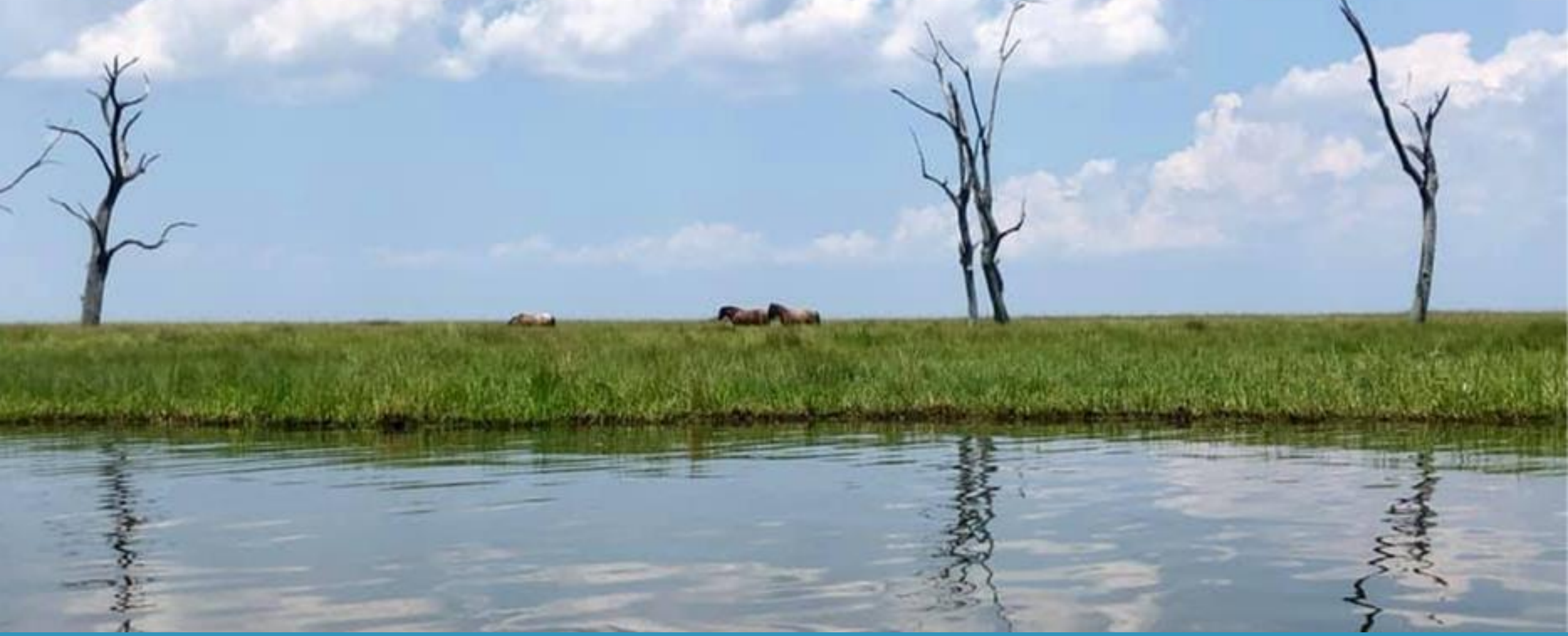
- Addresses short-term issues of inequity within the process (long-term, this is not the same as policy and resource allocation/investment)
- Better returns on governance capacity + reducing uncertainty

Capacity support

PROBLEM(S)	STRATEGY	INDICATORS OF PROGRESS	LONG-TERM OUTCOMES	TYPE OF EQUITY ADDRESSED
CAPACITY SUPPORT IDEA TO INCLUDE IN SECOND ROUND OF FUNDING				
Limited local public agency capacity to operationalize LWI mission and principles of equity, including CDBG low-moderate income requirement **Limited public (including organizations and general public) capacity to operationalize LWI mission and principles of equity**	**Pilot with low-capacity, high-impact communities -** Have co-design spaces where people can apply learnings to real-world examples that impact them (training lab, rather than webinars); focus on skill-building Include a few technical staffers as a part of the project to provide direct technical assistance	1. Up to three communities selected for the pilot 2. Up to five community-level conversations with those communities 3. Up to three co-designed projects per community that perform well with the updated BCA framework 4. Co-designed projects have multiple co-benefits beyond reducing flood risk	1. Co-designed projects are incorporated into regional watershed plan 2. Co-designed projects are funded 3. Pilot communities have increased capacity to develop projects	**Distributional equity** means fair distribution of resources, benefits, and burdens, and prioritizes resources for communities experiencing the greatest inequities.

This is one idea that we'll focus on today.

The final report will also include recommendations for things outside of this upcoming funding opportunity.



BREAKOUT GROUPS

Breakout group - questions

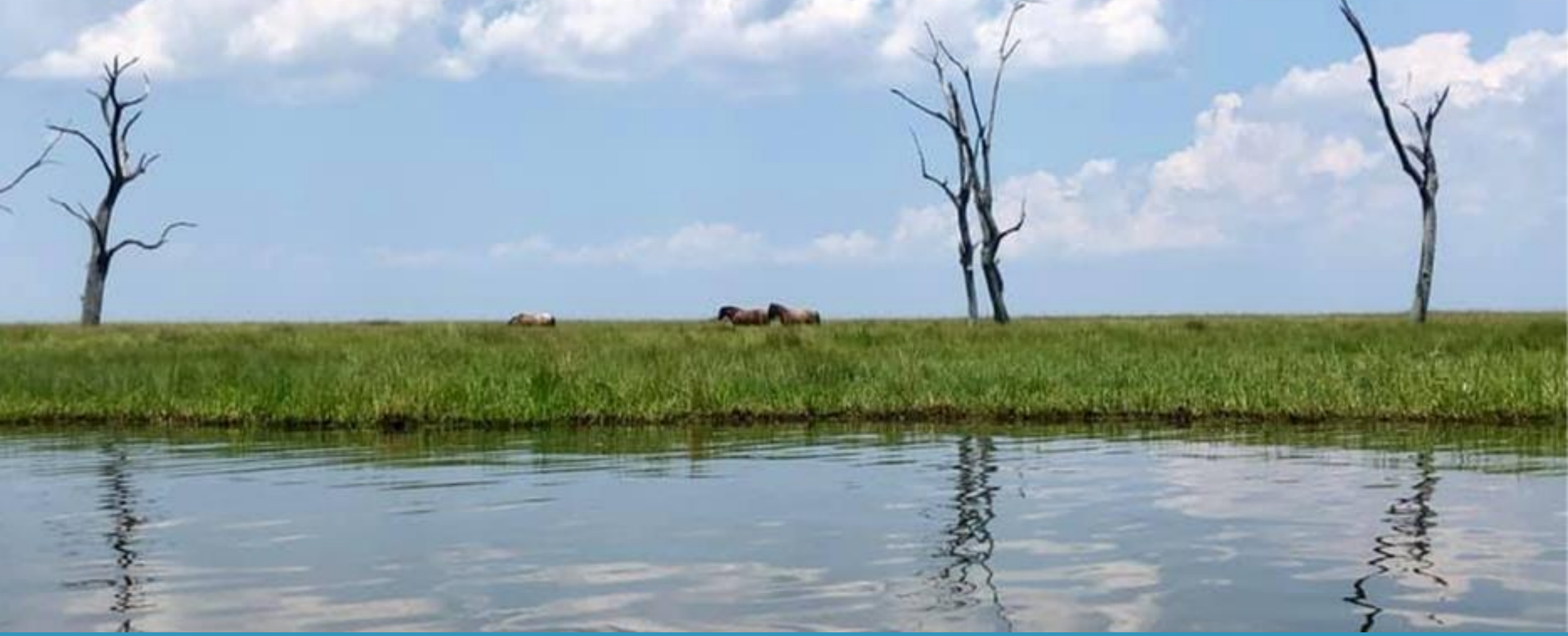
Pick what table you'd like to be at…

BCA framework discussion (tables A+B)

- How do we determine geographic boundaries by beneficiary categories? What are the right questions to ask people to make this feasible?
- For example, Have you considered how much water will be displaced?
- When we think about beneficiary categories should we have one general adjustment or category specific adjustments? Should we adjust the same for mental health as we adjust for ecosystem benefits or property damage? How would we do that?
- What additional elements would we add conceptually to the BCA (cost, coastal ecosystem categories)? Relate this back to the prior two questions.

Capacity building ideas discussion (tables C+D)

- How might this approach be successful? Unsuccessful?
- How might state agency employees participate in this process?
- How might communities be selected?



GROUP REPORT OUT

Closing and next steps

- Post-workshop summary
- Take food to go!
- Thank you for being here today!
- Pluses, let us know what you liked. Deltas, give us suggestions for how we can improve
- Next steps on mileage reimbursement and stipends for those who can receive them
- Final report for the work
- Upcoming funding opportunity

Funding acknowledgment and thanks: This work is a result of research funded by the National Oceanic and Atmospheric Administration's RESTORE Science Program under award NA31NOS4510188 to Capital Region Planning Commission and their partners LSU AgCenter, LSU, and Pontchartrain Conservancy.

NOAA RESTORE WORKSHOP #3

IDENTIFY APPROACHES FOR INCORPORATING CO-BENEFITS AND COSTS TO HAZARD MITIGATION DECISION-MAKING

POST-WORKSHOP SUMMARY

On July 13, 2022 a group of approximately 10 participants gathered to discuss two draft approaches for incorporating the costs and benefits of issues of equity and impacts to natural function for the purpose of project design and selection. Below is a reminder of what we discussed, what we addressed during our activities, what we learned, and an outline of our next steps.

BACKGROUND

Louisiana Watershed Initiative (LWI)

The Louisiana Watershed Initiative was established following the Great Floods of 2016. This initiative is introducing a watershed-based approach to reducing flood risk in Louisiana with a focus on:

- Using scientific tools and data;
- Enabling transparent, objective decision-making;
- Maximizing the natural function of floodplains; and
- Establishing regional, watershed-based management of flood risk[1].

Connecting this NOAA RESTORE Science Program Grant to LWI

One program area of LWI is to support the funding of projects through three rounds of competitive funding. As with many project selection processes, the current process includes the utilization of a benefit-cost analysis (BCA) tool to support in justifying the project.

Currently, the traditional BCA tools that are available overlook the following areas for infrastructure-oriented flood mitigation and watershed management:

- The water quality costs of some gray infrastructure flood risk reduction solutions (e.g., channelization);
- Potential spatial spillovers[2] that include a full range of up-stream to down-stream external benefits and costs which occur upstream and downstream from infrastructure; and
- Non-market costs[3] to low- and moderate-income communities.

The development of a BCA decision-making framework that aligns with the mission of LWI is critical to prioritizing and reducing uncertainty around water management project selection. By incorporating additional costs and benefits into our decision-making process, we can better understand how current investments may be impacted by projects that

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[1] https://watershed.la.gov/about

[2] A "spatial spillover" means your location and actions matter to other people. If one area makes a decision to get their water out as quickly as possible without talking to their neighbors downstream, there may be unintended consequences (e.g., flooding and poor water quality)

[3] Non-market costs can be thought of as things that are not traded in markets. In other words, there is no defined or set dollar amount that is assigned. Examples may include clean air, clean water, and other items that are not bought or sold in explicit ways.

alter the landscape and where water flows. This planning grant supports the development of a research, development, and implementation plan to address these challenges. The grant is led by the Capital Region Planning Commission and includes LSU, LSUAg, and Pontchartrain Conservancy. Additionally, our full team that includes natural resource managers includes Louisiana's Office of Community Development - Disaster Recovery Unit and Department of Environmental Quality.

WORKSHOP EVENTS

Prior to beginning discussions, the team presented content that focused on:

- How equity and natural function relate to these discussions
- Learnings from the previous workshop
- A draft BCA framework concept
- Draft capacity building concept

The PowerPoint presentation is attached for your reference.

The table below outlines the key takeaways from this workshop. To see supporting content for the BCA Framework Breakout Group please reference slides 10 – 35. To see supporting content for the Capacity Breakout Group please reference slides 37 – 40.

Takeaways from Workshop #3 (BCA Framework Breakout Group)	
How do we determine geographic boundaries by beneficiary categories? What are the right questions to ask people to make this feasible?	• Downstream impacts incorporated upfront • Consider commercial vs. residential in the values • Consider social benefits
When we think about beneficiary categories should we have one general adjustment or category specific adjustments? Should we adjust the same for mental health as we adjust for ecosystem benefits or property damage? How would we do that?	• Coastal Master Plan is an example • VSL for buildings • Clearer objective metrics as an objective function • Consider The Nature Conservancy tool (B. Piazza), hydrology • Include infographic to show composition of benefits and costs • Letter of map revision costs • Issue: Census dbc is not a useful measure for flood project. Flood boundaries are not equal to geopolitical boundaries • Doesn't consider the commercial facilities • It's based on residents (who lives in the area) • Increasing project cost should be incorporated into benefit-cost ratios • Double counting concerns with adding additional information. The important question is if existing values on BCA are appropriate for Louisiana. For example, primary production is undercounted. • Use land cover type to get more geographically accurate information • Don't count damage by dollar, instead consider structural equivalent damage. This is a reasonable way to improve quantification

	• Ecosystem service, using landscape helps to identify the value and we can add/deduct which is applicable in that area
Takeaways from Workshop #3 (BCA Framework Breakout Group)	
How might this approach be successful? Unsuccessful?	• Critical to provide clarity about the approach to participants, make sure everyone is on the same page • Cultivate champions within communities (beyond government) to participate in the effort • Support peer-to-peer network learning • Have this be a training lab with staffers internal to the community to build capacity and maintain institutional knowledge • Have a primer with everyone to develop a vision through co-design processes • Provide explicit guidance on what "co-design" and other terms/concepts mean and how it functions (who is at the table, how they're engaged, etc.) • Create clear examples of what capacity building looks like and how it can be implemented in communities • Cultivate support from elected officials • Develop a committee within communities similar to Houston where they had representatives from government and community as decision-makers • Ensure that the technical experts are knowledgeable on the work to be done. Consider having a training for technical experts to support building capacity • Support community learning and capacity building through outreach and engagement and technical assistance • Where possible, have those who provide technical support already be individuals who have relationship with the communities • Consider what the indicators of progress might be… proof that different project types are being submitted for future rounds of funding, or different scales of projects, or more cross-jurisdictional projects • Resources for project development should be provided (data, tools, etc.)
How might state agency employees participate in this process?	• State involvement and support is necessary • Provide physical space for meetings • Build relationships between state agency employees and communities to prevent gatekeeping
How might communities be selected?	• Make sure the needs of the community are aligned with the project – create a good fit and partnership • Consider communities that already have supportive local leadership • Consider communities that have documented flood challenges • Define the scale (neighborhood, town, parish, etc.) • Special preference for communities that may not have the resources to apply on their own (look to who submitted round 1 projects)

Lastly, we have what we refer to as the "idea marina" for topics that are relevant but may not have fit into the two concise breakout groups that met during this workshop. These ideas can be found in the table below.

Idea Marina
• Leverage Hazard Mitigation Grant phase funding with LWI through Governor's Office of Homeland Security and Emergency Preparedness • Parish governments need training for LWI regional models • Start this proposal within the LWI framework, new tools/models provide a value add

Key feedback received during the workshop

During the workshop, we also asked for feedback in the form of pluses (what they liked) and deltas (what can be improved). Overall, participants provided the most pluses on the meeting environment. Specifically, being able to collaborate in person and having delicious food. The key deltas that were the most mentioned, as well as strategies for addressing them, can be found below. Please note that our small grant team will do their best to integrate these suggestions based on our capacity. To help with transparency with regards to this we have indicated which suggestions are a top priority.

Delta	Suggestion(s) for addressing
More focus on questions. The discussion became too broad	● Provide space for more general discussion and ideas through facilitation tools, such as an idea marina.

NEXT STEPS

We thank everyone who has been involved in this process to date! Our workshops have wrapped up and the project team will be working diligently to develop a final report that show our findings and remaining questions. The team will also be working closely with others to develop a proposal to submit for the implementation of this work through the NOAA RESTORE grant program. Final proposals are due at the end of 2022 and we are hopeful that the great work that has been put into this effort will be supported for implementation.

The team will be staying in touch by asking for feedback on the final report and by sending out materials related to the NOAA RESTORE implementation grant.

June 2022 - November 2023

LINKING FLOOD RESILIENCE TO URBAN RE-INVESTMENT IN BATON ROUGE

NAS Gulf Research Program

The opportunity

Reduce flood risk and create more equitable outcomes in divested communities across the Amite River Basin by considering what public lands are available for reinvestment and green infrastructure.

Our team

Lead: Dr. Rebeca de Jesus Crespo (Louisiana State University)

Partners: Louisiana State University, Build Baton Rouge, Capital Region Planning Commission, Georgetown Climate Center

HOW WE PLAN TO DO THE WORK

01 **Utilizing data**

Combining hazard modelling outputs from the Baton Rouge Stormwater Master Plan and other local initiatives, with data on vacant and abandoned properties will help address urban reinvestment and flood risk synergistically.

02 **Listening to people on the ground**

Throughout this project there wll be opportunities to engage community members and decision-makers to shape the outcomes of the grant.

03 **Developing a tool**

The final result will be a tool that supports the implementation of goals for vacant property use across the Amite River Basin.

Contact Us :
Dr. Rebeca de Jesus Crespo,
rdejesuscrespo1@lsu.edu

Funded by National Academies' Gulf Research Program: ***bit.ly/nasgrp***

Linking Flood Resilience to Urban Reinvestment in Baton Rouge

de Jesus Crespo, R. T. Douthat, C. Wilson, A. Bennett, M. Patole, R. Sanderson, G. Siemers

Outline

- Funding Source
- Background
  - Context
  - Conceptual Model
- Objective
- Study Area
- Project Partners
  - CRPC/LWI
  - BBR
- Approach and Lead Investigators
- Current Status

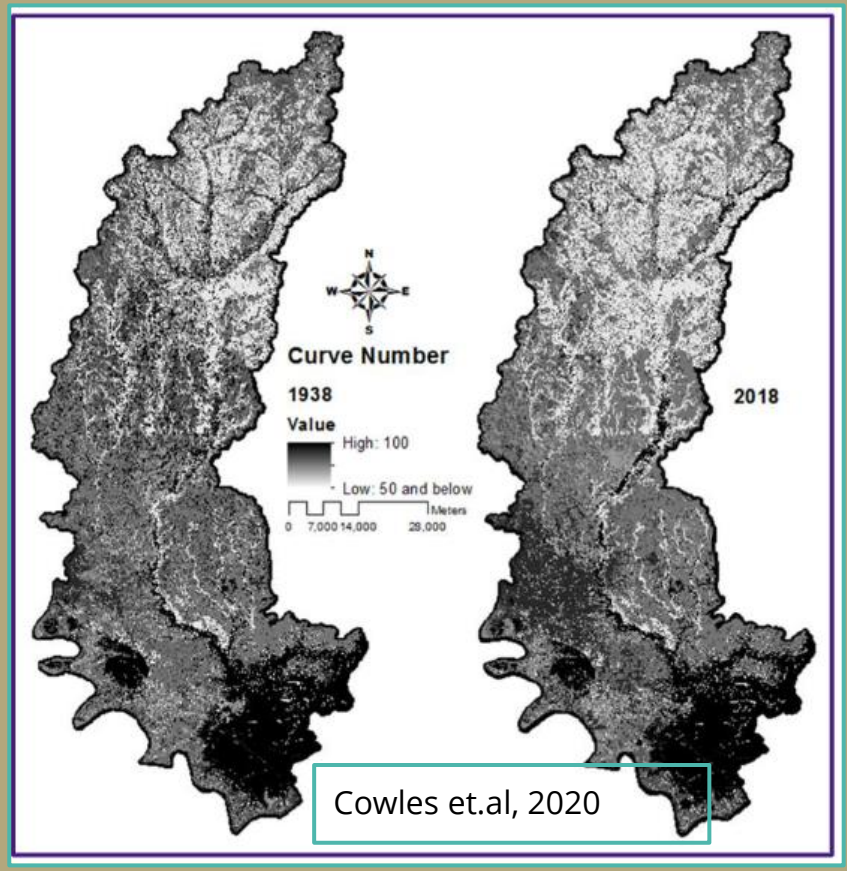
Funding Source

- **The Gulf Research Program (GRP)** of the National Academies of Sciences
- **GRP** is an independent, science-based program founded in 2013 as part of legal settlements with the companies involved in the 2010 Deepwater Horizon disaster.
- This work is funded through the *Bridging Knowledge to Action* grants.

NATIONAL ACADEMIES
Sciences
Engineering
Medicine

Study Context: Baton Rouge, Louisiana

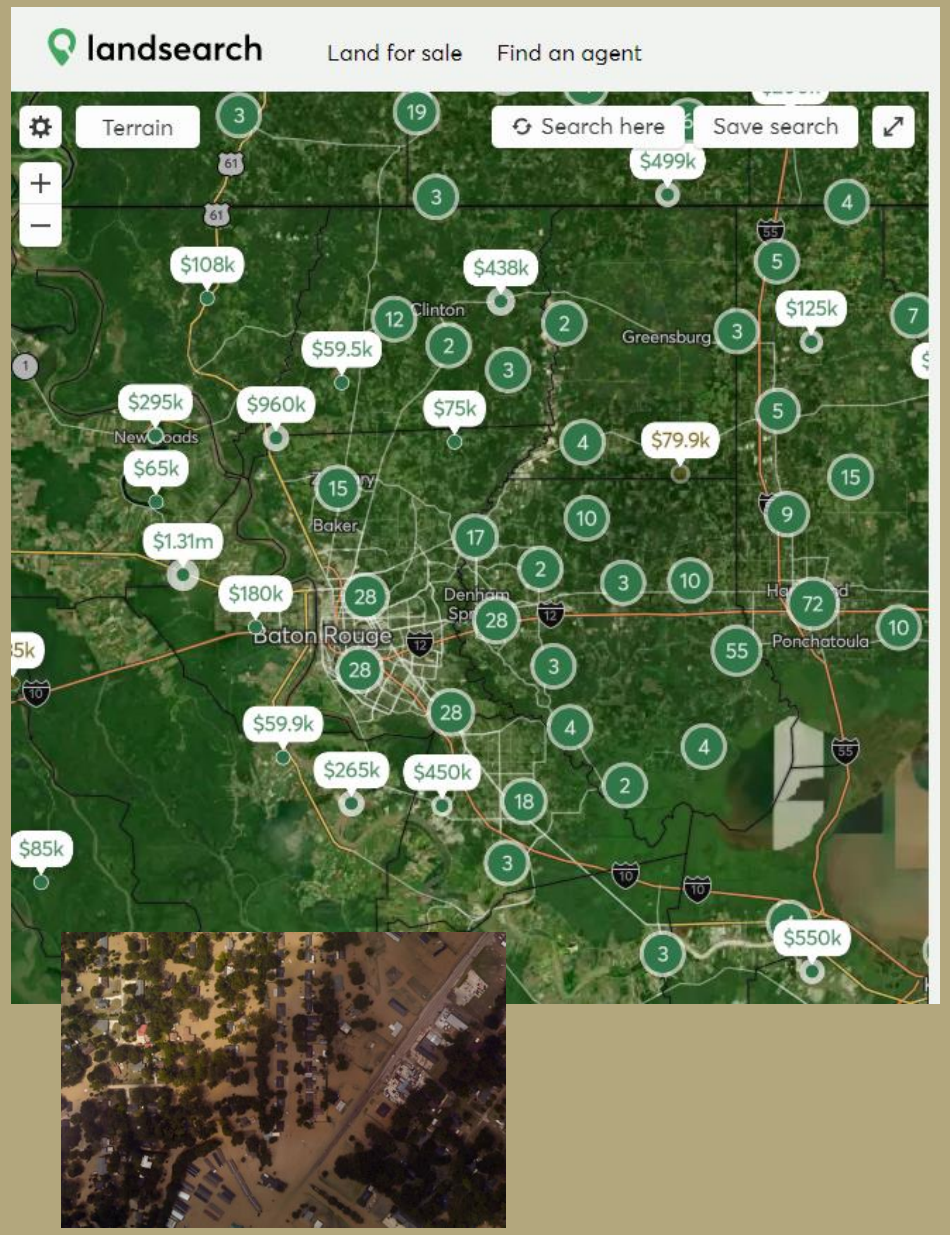
- Baton Rouge is part of the **Amite River Basin (ARB).**
- The risk of flooding has increased over the years in the lower ARB.
- Causes include higher frequency and severity of extreme rainfall events, as well as urbanization patterns.



Change in runoff potential (as indicated by CN values).

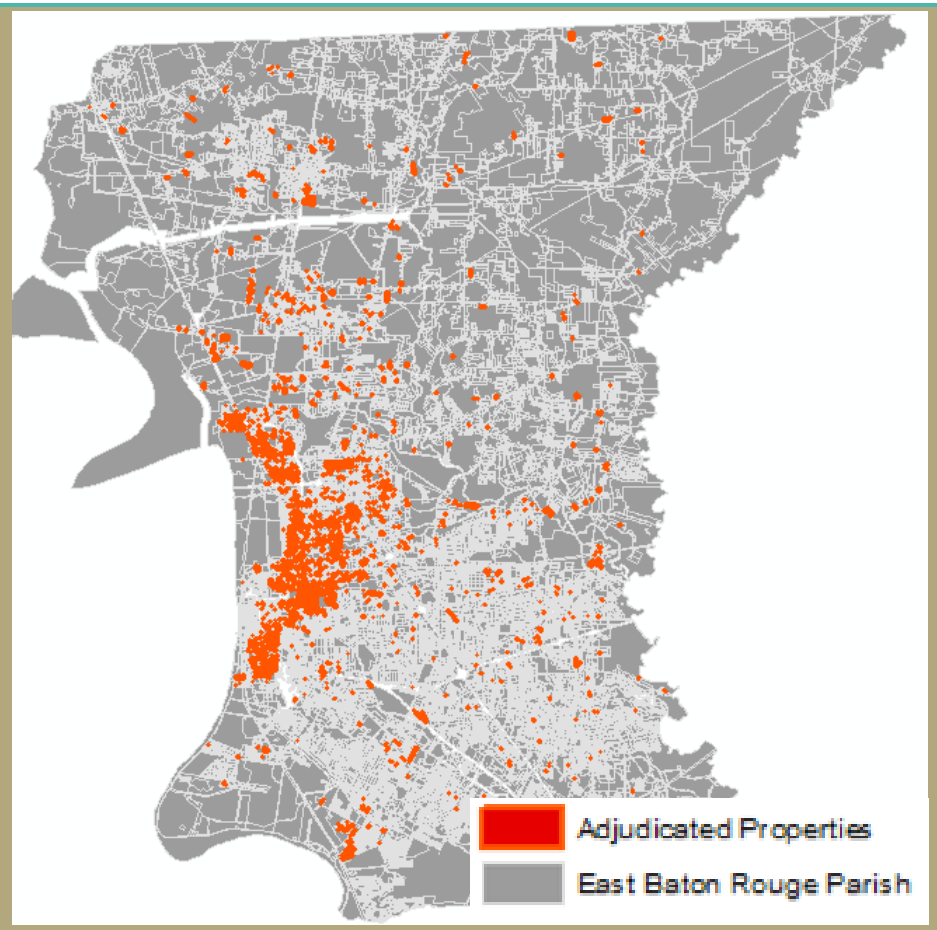
Study Context: Baton Rouge, Louisiana

- **Urban sprawl** is an important driver of flooding.
- It exposes more people to flood hazards, as new development often occurs at or near floodplains.



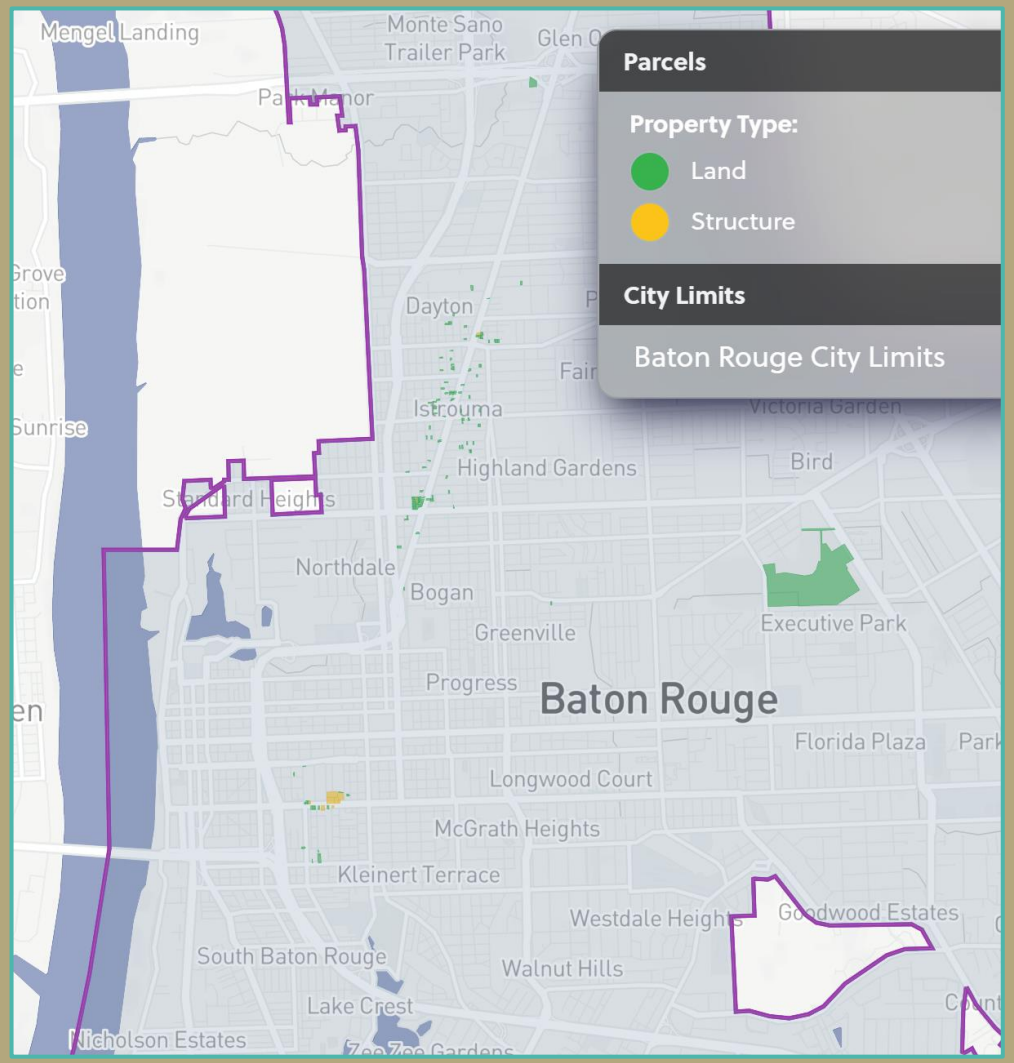
Study Context: Baton Rouge, Louisiana

- **Urban disinvestment** and abandonment is widespread in Baton Rouge, and is also a result of sprawl



Study Context: Baton Rouge, Louisiana

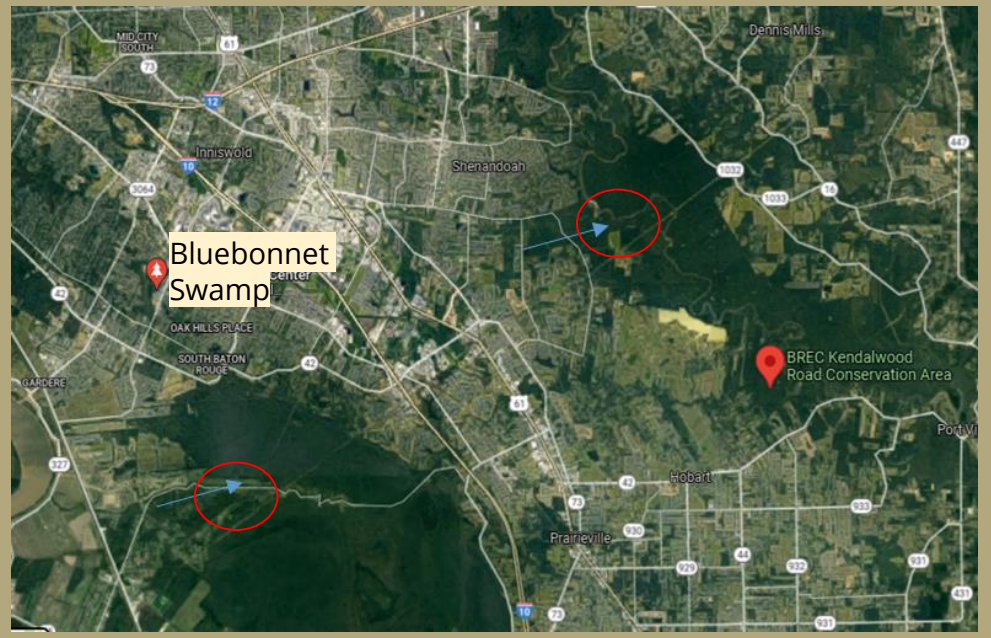
- **Moving forward,** most would agree that we should:
  a. **Promote Urban Revitalization**

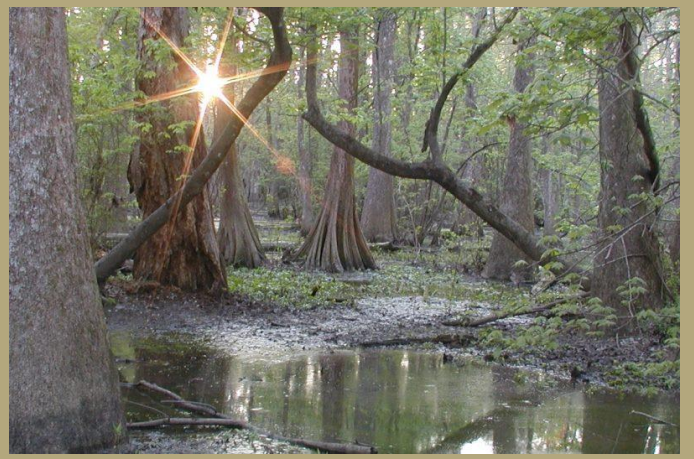


BBR Land Bank properties

Study Context: Baton Rouge, Louisiana

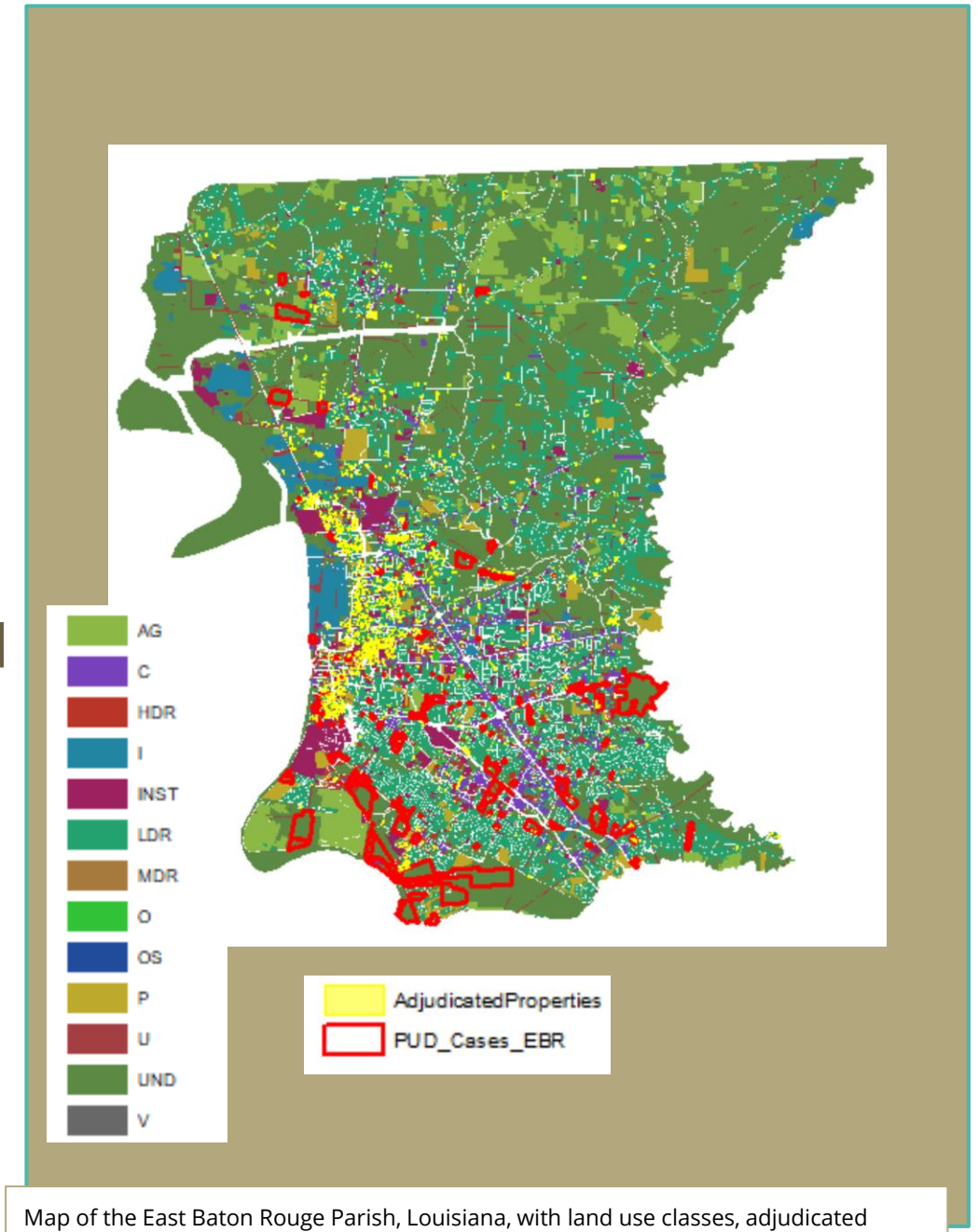
- **Moving forward,** most would agree that we should:
  a. Promote Urban Revitalization
  b. Protect our Natural Capital





Study Context: Baton Rouge, Louisiana

- **We have a long way to go:**
  a. Natural areas are actively being converted into commercial and residential development
  b. Vacant properties remain underutilized

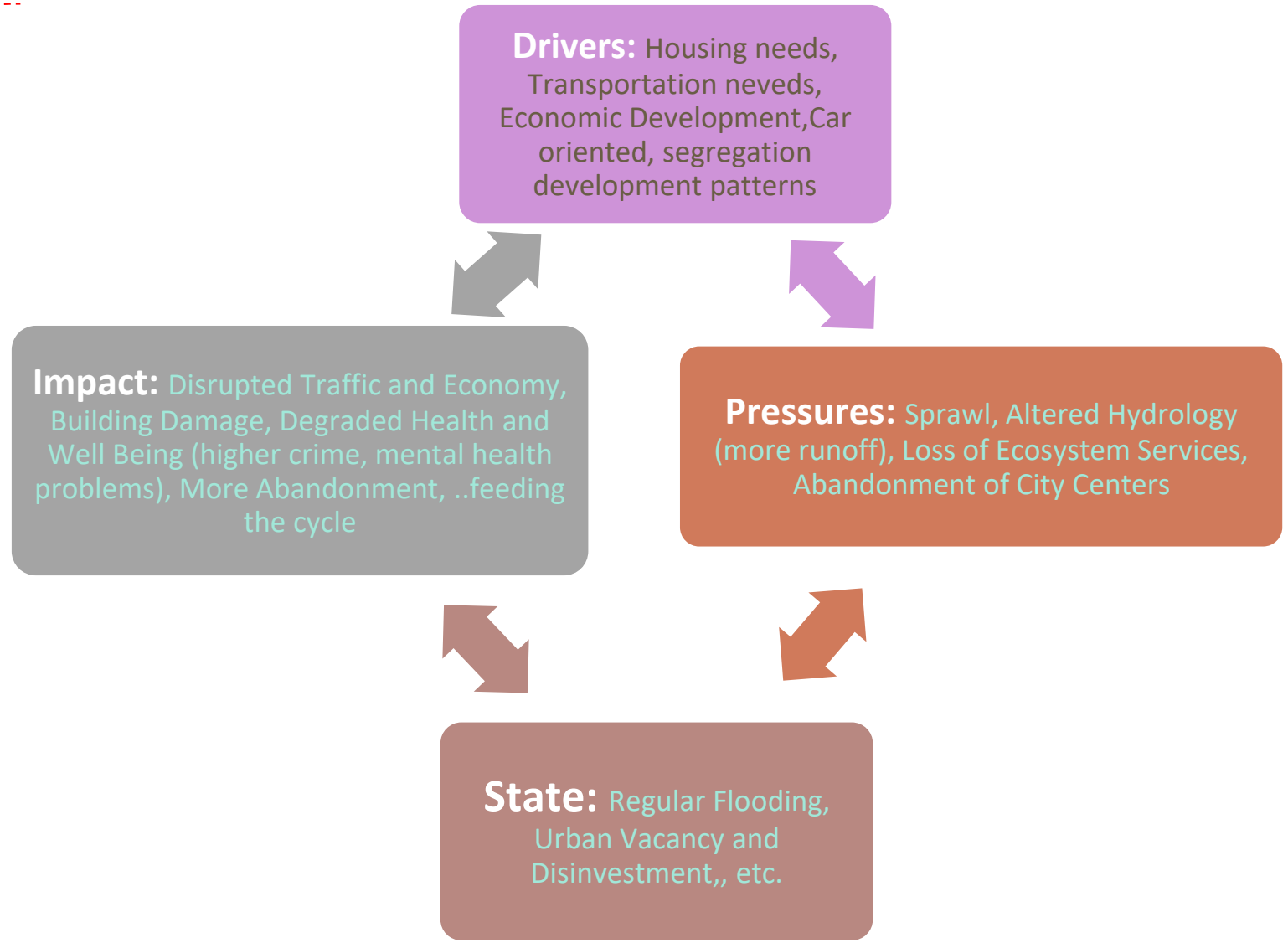


Map of the East Baton Rouge Parish, Louisiana, with land use classes, adjudicated properties and planned urban development areas. Data Source: OpenBR. Author Rebeca de Jesus Crespo

Conceptual Framework: Linking flood resilience and urban re-investment

(Illustrated using a Driver-Pressure-State-Impact-Response Framework (DPSIR) | Land & Water | Food and Agriculture Organization of the United Nations.

Response:
Prioritize re-development of vacant, well connected urban parcels, consider conservation, mitigation and green infrastructure alternatives in flood prone parcels



Objective

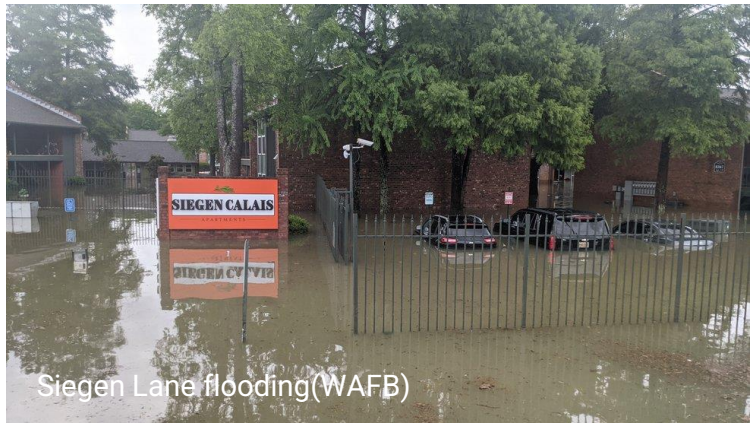
- **To promote urban revitalization synergistically with regional strategies for flood risk reduction**.
- Focal programs and partners:
  - Regional partner, Louisiana Watershed Initiative Region 7, Capital Region Planning Commission (CRPC)
  - Local implementation partner, Build Baton Rouge (BBR), the economic redevelopment and land bank authority in the City of Baton Rouge–Parish of East Baton Rouge

BUILD BATON ROUGE

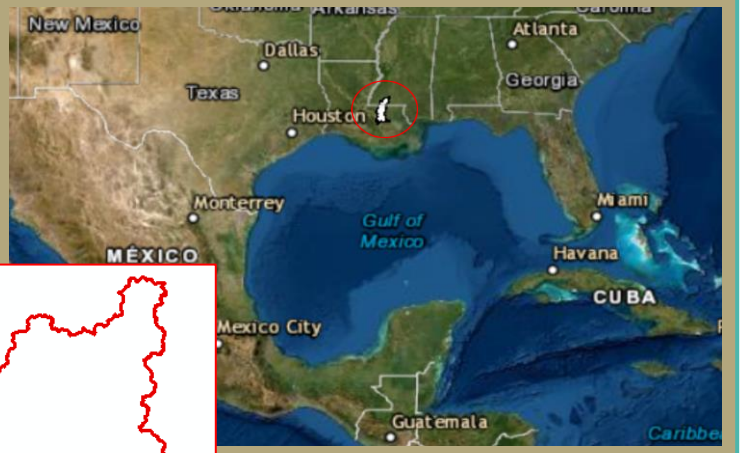
LOUISIANA WATERSHED INITIATIVE

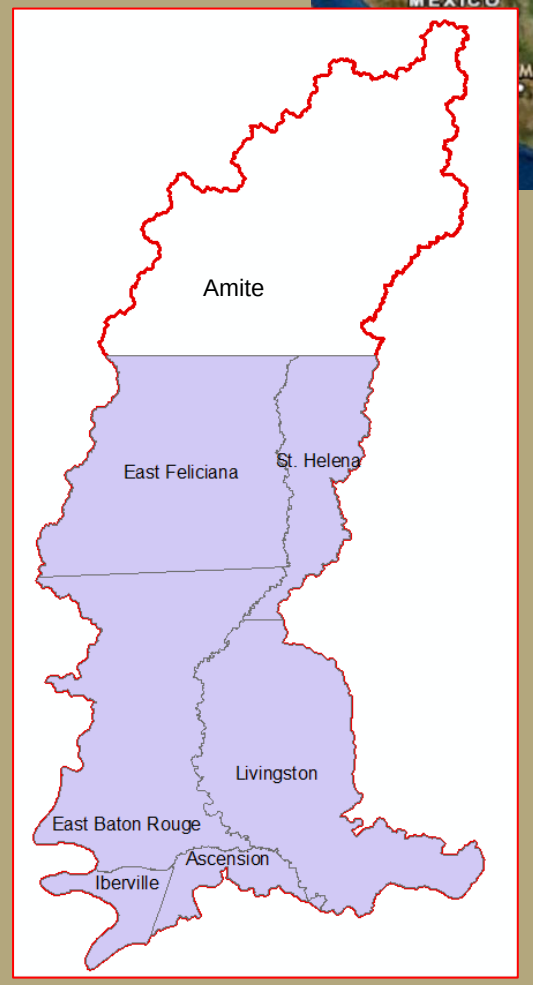
Study Area

- All **parcels within the Amite River Watershed**
  - Includes East Baton Rouge and other areas within the watershed.
  - The watershed scale accounts for the hydrological connectivity across different parishes. The parcel scale is relevant for decision making purposes.



Siegen Lane flooding(WAFB)

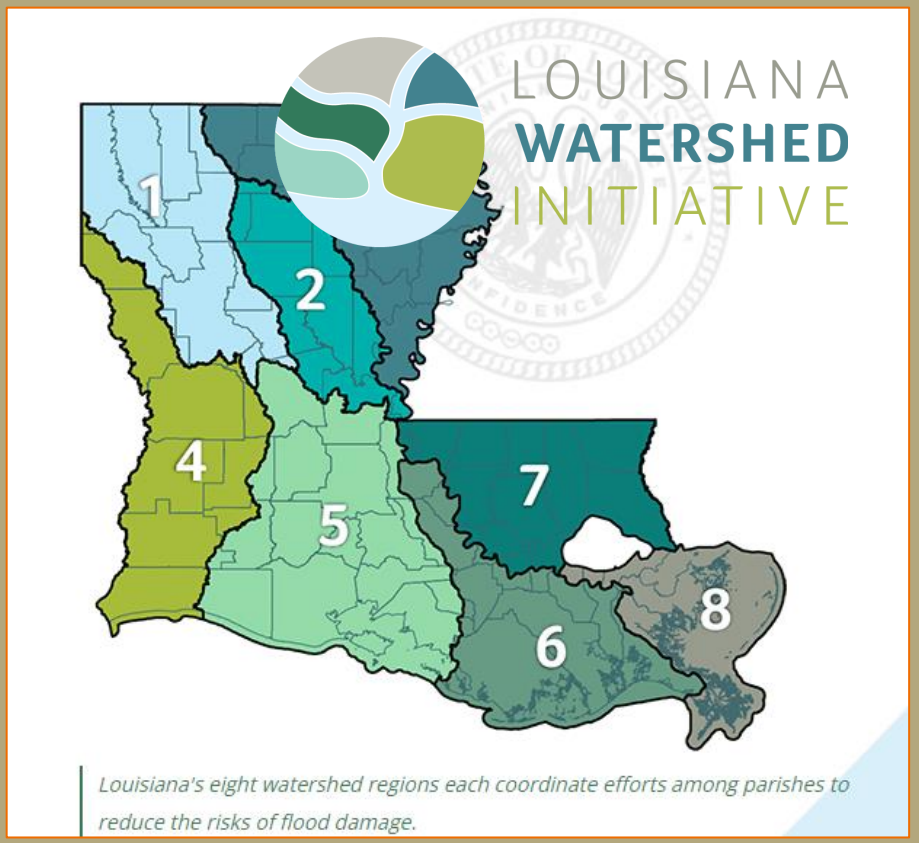




Project Partners

- **Louisiana Watershed Initiative (LWI)**

- The program is guided by the following principles:
  - Using scientific tools and data
  - Enabling transparent, objective decision-making
  - Maximizing the natural function of floodplains
  - Establishing regional, watershed-based management of flood risk

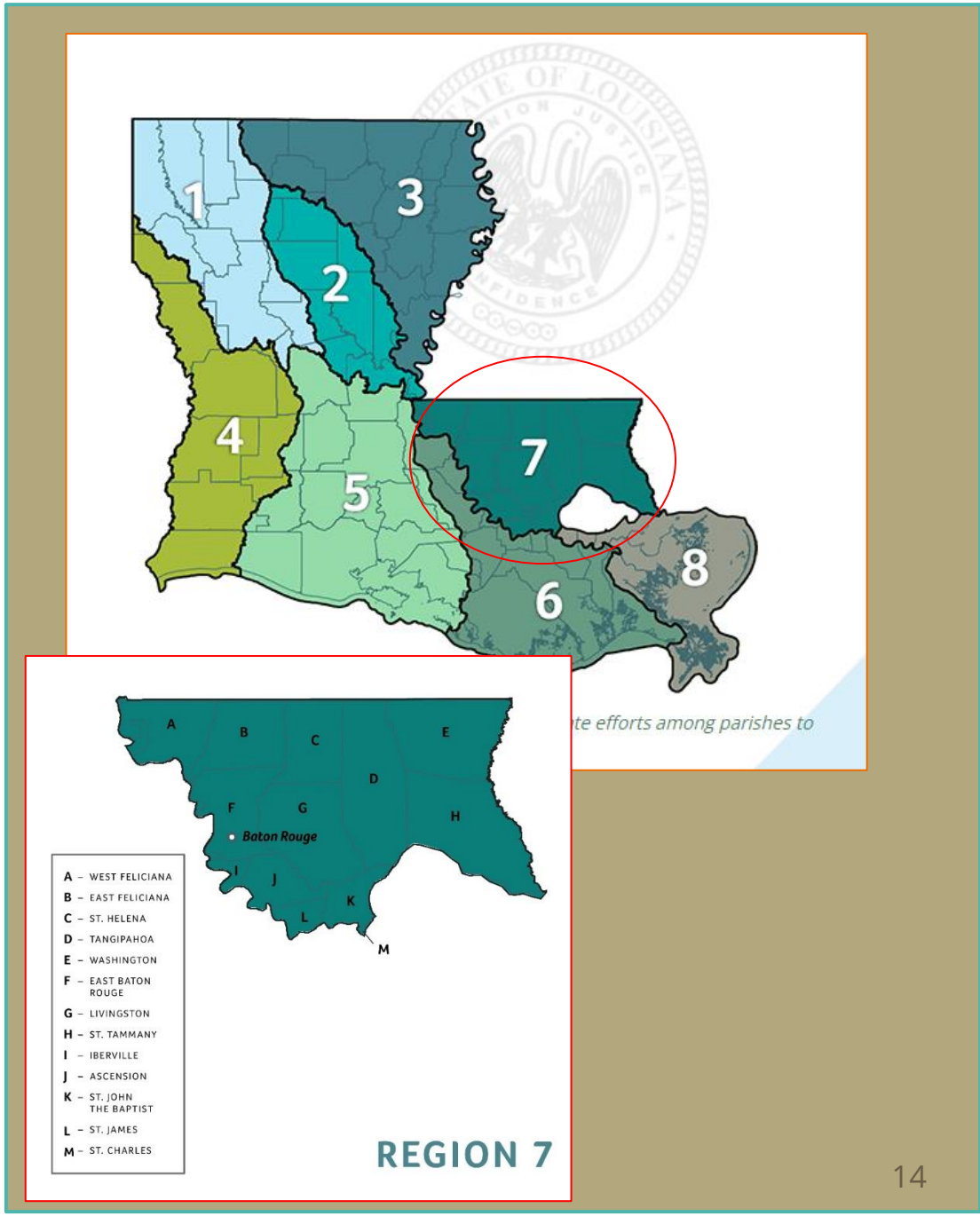


Louisiana's eight watershed regions each coordinate efforts among parishes to reduce the risks of flood damage.

Project Partners

- **Louisiana Watershed Initiative (LWI)**

- Our project lies in LWI **Region 7**:
  - Potential “receiving” community for displaced coastal communities
  - Potential to address a) redevelopment/equity and b) upstream-downstream/urban drainage problems.



A Note on Region 7

- From 2010-2020 Ascension and Livingston experienced some of the fastest growing trends in the State, with 23.4% and 15.9% growth respectively.
- Recent development moratoria on these parishes reflect concern by communities regarding repeated flooding.
- Moratoria are temporary fixes.

The bridge over the Amite River is almost under water in the Port Vincent area during severe flooding in Livingston Parish on Sunday August 14, 2016.

Buy Now

Project Partners

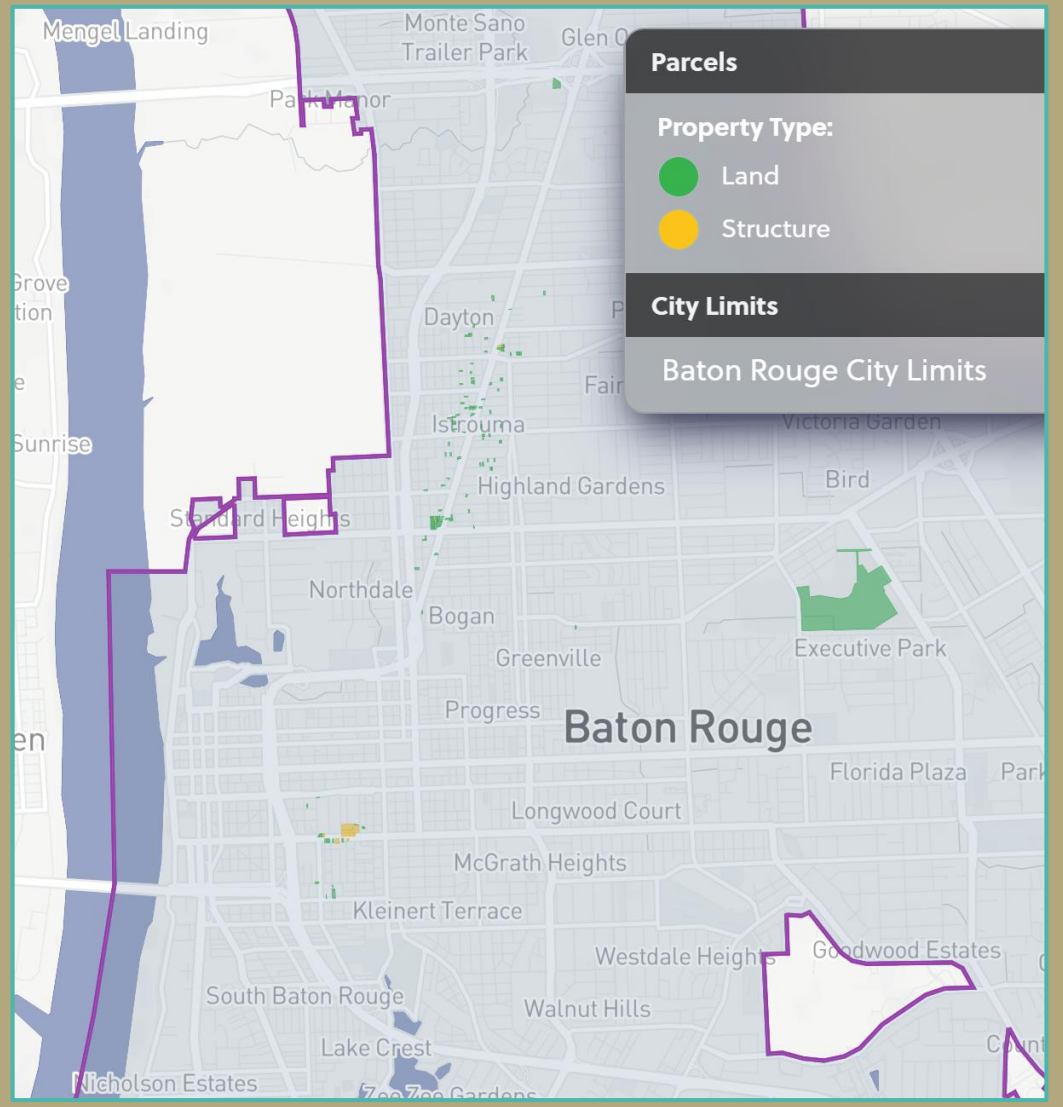
- Created as The East Baton Rouge Redevelopment Authority by the 2007 Louisiana Legislature.
- In 2019 changed its name to **Build Baton Rouge** and adopted its current statement of vision, mission, and values
  - Bringing people and resources together to promote equitable investment, innovative development, and thriving communities across all of Baton Rouge.

BUILD BATON ROUGE

Project Partners

- Focal Program: **BBR Land Bank**
- BBR acquires vacant, blighted, and distressed properties and return them into productive use.

- These properties are held by BBR in its Land Bank, which are:
  - Developed by BBR as a redevelopment project
  - Available for sale or long-term lease through a public-private partnership
  - Transferred to the Plank Road Community Land Bank and Trust for community ownership



BBR Land Bank properties

Approach

(1) Designing a decision-support tool for BBR to help inform the use of existing of vacant, abandoned, deteriorated (“VAD”) properties: LSU

(2) Conducting legal and policy research and providing recommendations to BBR: GCC

(3) Developing and translating a strategy for implementation of the BBR’s land bank program and policy: BBR; LWI-Region7

Approach

(1) Designing a decision-support tool for BBR to help inform the use of existing of vacant, abandoned, deteriorated ("VAD") properties:

Louisiana State University will:

A. Use existing models and modelling tools, such as:
   a. InVEST: Urban Flood Risk Mitigation Tool
   b. Flood Factor: Flood Risk
   c. EPA Smart Location: Location efficiency
   d. Existing Research from:
      i. Inland from the Coast
      ii. Stormwater Master Plan
      iii. Among others

B. Integrate outputs into existing platforms such as Tolemi/Building Blocks

Rebeca de Jesus Crespo

Thomas Douthat

Clint Wilson

Approach

GEORGETOWN CLIMATE CENTER

(2) Conducting legal and policy research and providing recommendations to BBR: GCC

Georgetown Climate Center (GCC) will:

A. Research decision-support tools related to flood risk, natural resilience, and land use nationally, and interview stakeholders who designed, manage, and use these tools.
B. Examine the legal, administrative, financial, and environmental considerations around each of these tools and how they are being put into practice.

Annie Bennett

Adaptation Clearinghouse

Approach

(3) Developing and translating a strategy for implementation of the BBR's land bank program and policy: BBR; CRPC/LWI-Region7

CRPC and BBR will:

A. Conduct interviews with stakeholders focusing on reevaluating land development needs
B. Crowdsource data and information, and develop capacity as it relates to the planning and decision-making process for vacant property and land in EBR.

Rachelle Sanderson

Manny Patole

Gretchen Siemers

Current Status

Summer 2022:

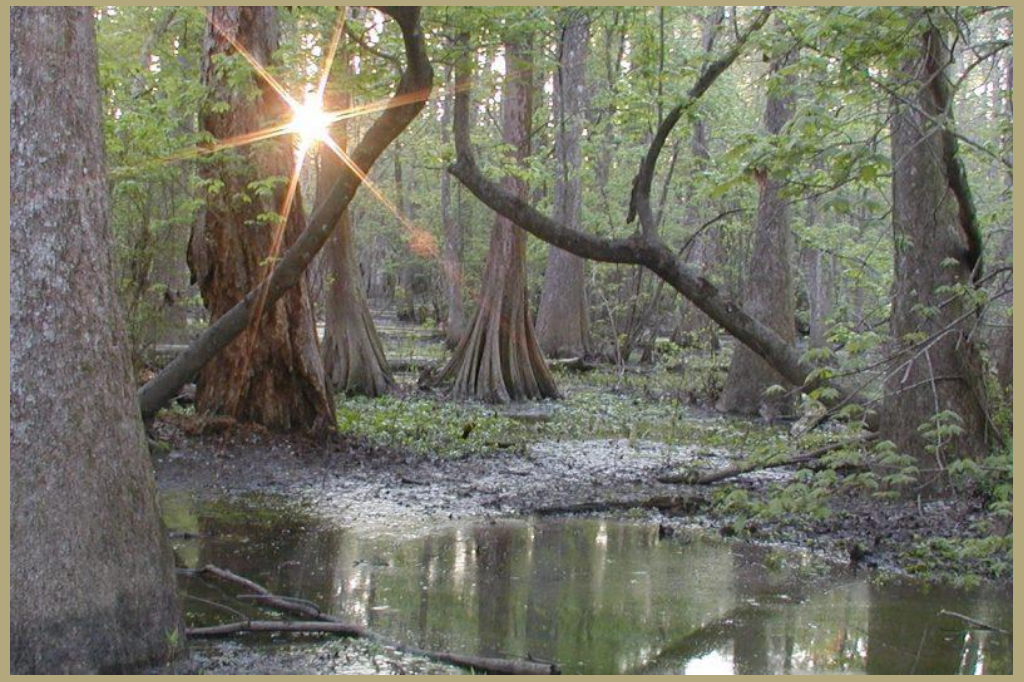
- Graduate students from NYU, Georgetown, and University of West Florida have synthesized existing research, and developped preliminary spatial models.
- Our team has started reaching out to stakeholders to identify relevant datasets.

Fall 2022:

- Schedule stakeholder meetings and workshops
- LSU graduate students will continue executing spatial models, policy synthesis and data analysis.

Acknowledgements

- Dan Levine
- Tarea Karunaratne
- Alec Bardey
- Vaidehi Raipat
- Emily McRae
- Katie Spidalieri
- All the EBR stakeholders that have provided data and advice



Thank You

Rebeca de Jesus Crespo: rdejesuscrespo1@lsu.edu