# Flood Resilience in Riverine Communities

Understanding Risk and Facilitating Valuesinformed Decision Making



POWR/PEC Western PA Region Virtual Watershed Workshop I

# Role of Penn State as a land grant university is to help meet the Commonwealth's needs.

# Managing flooding = critical need.

- Timely access to relevant science
- Ways to facilitate dialogue about trade-offs and value choices
- Resources for bridging research and implementation



# What is the Penn State Initiative for Resilient Communities (PSIRC)?

- University strategic funded initiative
- Two year pilot; official start in January 2019 (now extended)
- Focus on riverine flood resilience and community development
- Goal is to help provide impact in broader region: PA & beyond







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# Challenges

What problems, now and in the future, are facing your community and surrounding region?

# Lack of available funding

- dwindling local tax base (local economic self-sufficiency, blight & abandonment)
- perception of less available funding from State and Federal sources

# Difficulty aligning funds with needs

- sources may not match local challenges
- difficult to combine multiple funding sources in sensible ways
- local communities may not have expertise, experience, or bandwidth to identify and take advantage of funding opportunities

# Uncertainty

- changing policy and regulatory environment (FIRMs, NFIP, water quality demands, etc.)
- increased flood risk and flooding in unexpected locations (including stormwater)

# Coordination

- coordination across municipal boundaries (flooding can't be addressed without working with upstream communities)
- political inertia / local resistance to change, "sunny day" attitude, institutional lock-in

# Values

What do you value that is at risk?

# Sense of Place

- Community (town and university)
- Downtown (historic places)
- Aesthetic (historic charm, natural/environmental beauty)

# **Individual Wellbeing**

- Health (current and future generations)
- Preservation of Life
- Flood Resilience

# **Economic Issues**

- Strong Tax Base
- Thriving Downtown
- Property Values
- Flood Resilience

# **Environmental Health and Services**

- Drinking Water Quality
- Greenways
- River / Ecosystem Health (esp. fish)
- Recreation

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# Knowledge

What knowledge is needed to make decisions?

### How will floodplains change in the future and what are the uncertainties?

- floodplain maps (FIRMs)
- extreme precipitation
- hazard and exposure

# **Risks and Trade-Offs**

- What are the dominant risks and associated trade-offs?
- How can these be most effectively communicated?

### What are available best management practices and how well do they work?

# What are regulatory constraints?

# What funding resources are available?

- improving understanding
- communication
- Implementation

# How does the National Flood Insurance Program (NFIP) work?

# Actions

What actions can be taken, now and in the future?

# Research

- · Understanding needs and concerns of community members
- What does climate change mean in the context of PA; understanding related uncertainty
- · Understanding the gaps and barriers to resilience efforts

# **Education and Engagement / Communication**

- · Educating the public and decision makers
- Understanding needs and concerns of community members
- Communication of knowledge between groups (i.e. scientists, planners, community members)

# Planning

- Understanding potential results of possible planning decisions
- Working across scales and jurisdictions
- Prioritizing infrastructure investment under climate change uncertainty; coming up with sound and relevant "measuring sticks"

### Investment

- Taking action on river conservation, particularly smaller scale tributaries
- Establishing a coordinated portfolio of projects and initiatives

















"FEMA requires a BCA to validate cost-effectiveness of proposed hazard mitigation projects prior to funding" (FEMA 2019).





# Next steps: sharing initial findings, reaching out to stakeholders for more in depth discussion





- Further interviews
- Focus groups
- Use of expert model to prompt discussion
- Larger group sessions

- Impact of COVID-19 on outreach
- New/creative ways of engaging needed



