

PARTNERSHIP...ACADEMY, MANAGING BY NETWORK- CASE STUDY

PARTNERSHIPS & THE INFINITE GAME OF FLOOD RISK MANAGEMENT

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USACE – Kansas City District

May 13, 2021 – 10:00 CT



**US Army Corps
of Engineers®**

*These views are
only those of the
presenter and do
not represent
those of USACE*



OVERVIEW

- Flood hazards
- Flood solutions
- Problems that trip us and result in disasters
- Culture change for effective FRM
- Partnerships that support effective FRM
- Why this awareness sets the stage for resiliency in the infinite game of flood risk management



“Sith floods are my speciality!”



**US Army Corps
of Engineers.**

A LEARNING ORGANIZATION, AND ITS QUOTES

“A 10-cent budget gets a 10-cent review.”

Gordan
Lance

“Everything is a negotiation.”

Christy
Ostrander

“Don’t be the toad in the road.”

Christy
Ostrander

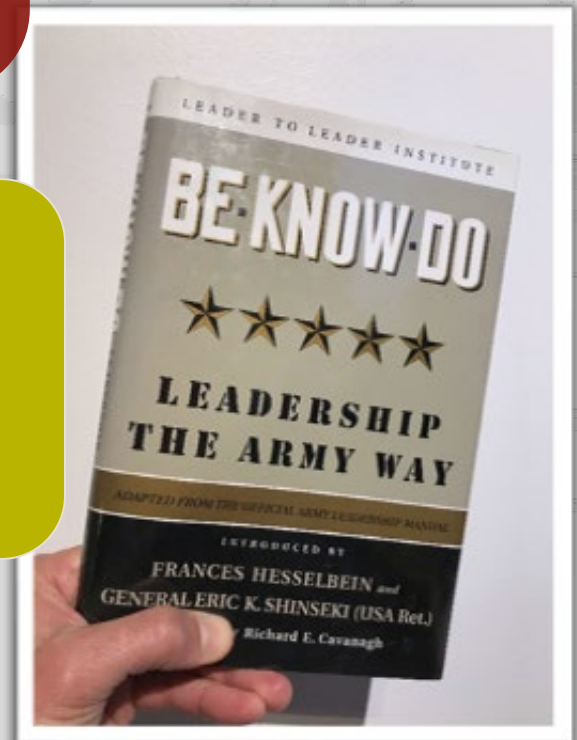
“Dead from the neck up.”

“2 times 2 is still zero.”

“Let’s prevent a ‘Ready, fire, aim’ scenario.”

Bill
McFarland

“Doing more with less is 20 years ago. Now, we’re doing the impossible with virtually nothing.”



OBJECTIVES

- Help you understand flood risk management
- Describe some of the constraints of large features
- Explain how stronger flood risk management uses partnerships
- **IF TIME ALLOWS:** Discuss some very useful tools I've applied



US Army Corps
of Engineers.

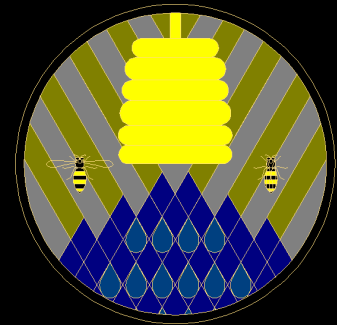
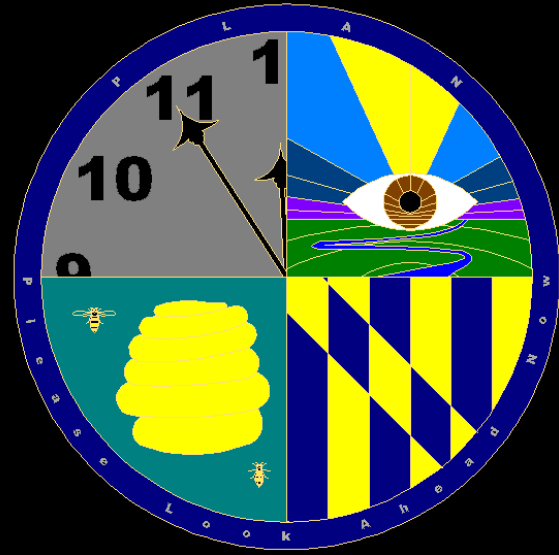
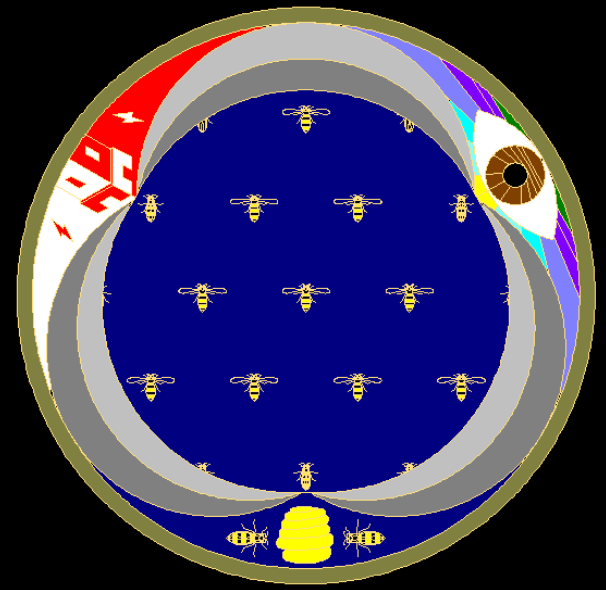
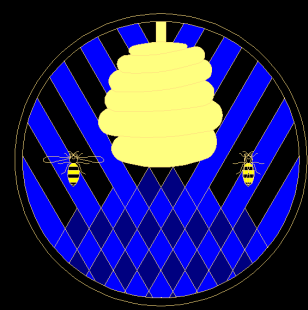
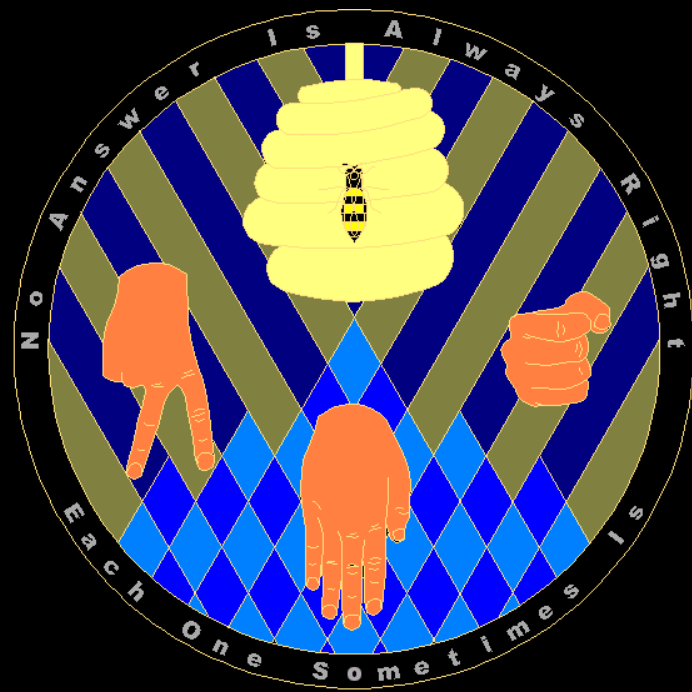


RECOGNIZING PARTNERSHIPS

Pictures are worth a thousand words...



THE ARMY CHALLENGE COIN



THE ARMY CHALLENGE COIN



Capturing the idea of partnerships

FLOODING: THE #1 NATURAL DISASTER

Why we need to act



MORE FLOOD DISASTERS IN THE NEWS



*Indian Creek, Kansas City, 2017.
Photo from ABC News.*



This is a levee

500-year "rain bomb" floods interior of levee in Ottawa, KS, 2019. Photo from KC Star drone.



*Oklahoma flooding, 2015.
Photo from Floodlists.com*



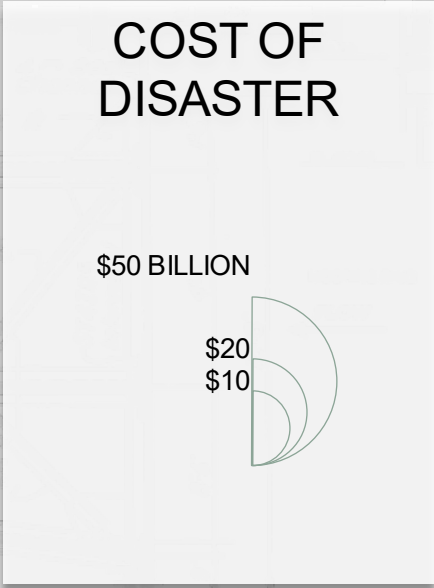
*Millennium Flood Event, South Carolina, 2015.
Photo from Sean Rayford.*

BILLION DOLLAR FLOODING

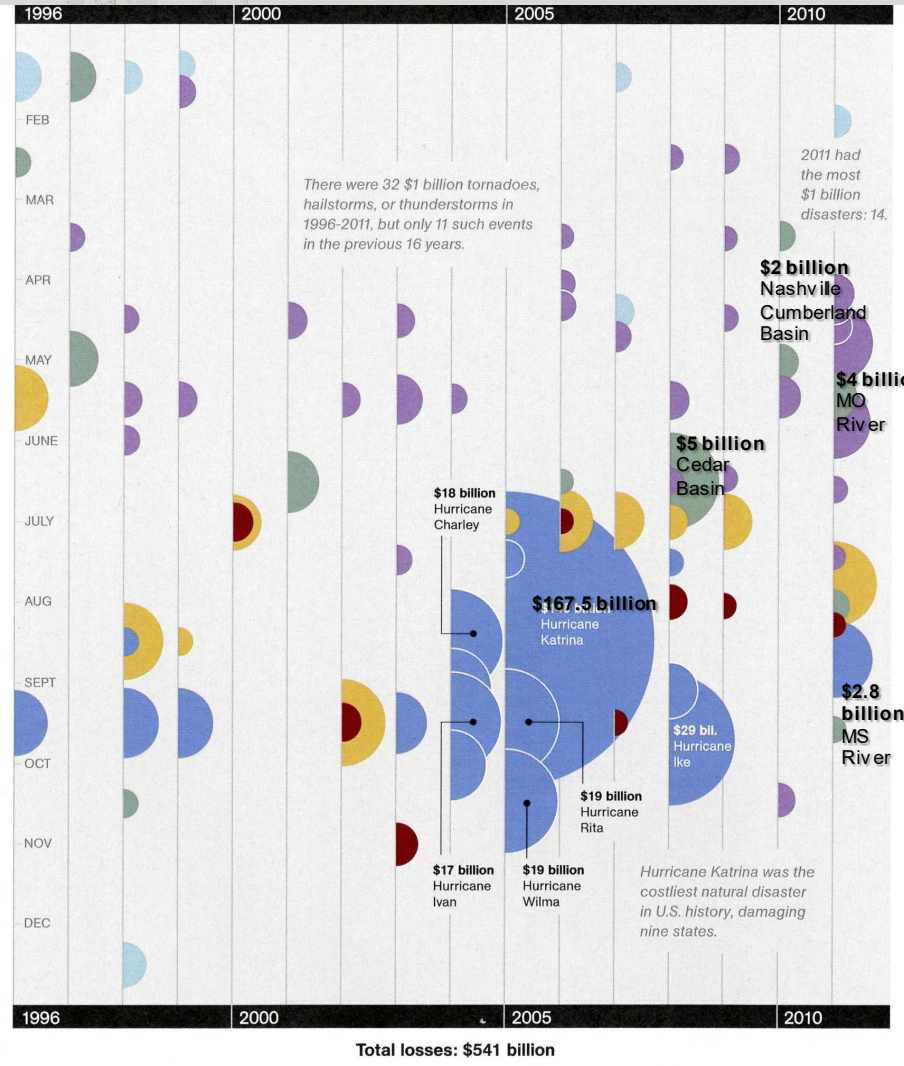
ALL U.S. WEATHER DISASTERS from 1980 to 2011 that caused at least one billion dollars* in damages are plotted by month and year; the size of each half circle represents the cost of the disaster. The ten most costly events are labeled.



- DISASTER TYPE**
- Drought/heat wave
 - Wildfire
 - Flood
 - Flash Flood
 - Hurricane
 - Tornado/hailstorm/thunderstorm
 - Blizzard/ice storm/freeze



BILLION DOLLAR FLOODING



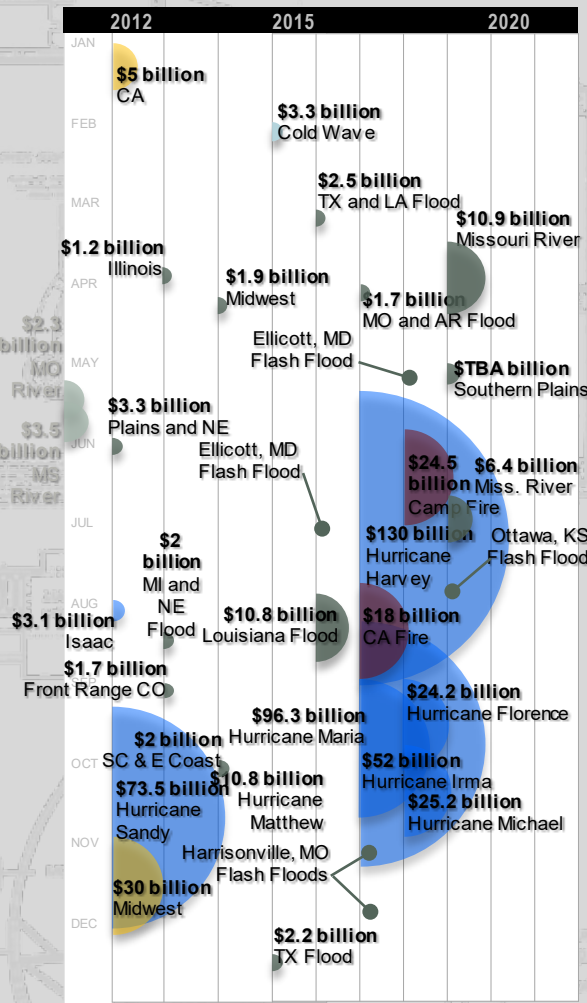
*ALL DOLLAR AMOUNTS ADJUSTED TO MARCH 2012 DOLLARS
JOHN TOMANIO, NGM STAFF. SOURCES: ADAM SMITH, NATIONAL CLIMATIC DATA CENTER;
JEFF MASTERS, WEATHER UNDERGROUND; NATIONAL CLIMATIC DATA CENTER

Credit: National Geographic, "What's Up with the Weather," Sep. 2012

BILLION DOLLAR FLOODING

BILLION-DOLLAR WEATHER

New Vocabulary
 "Polar vortex"
 "Bombo-genesis"



ALL U.S. WEATHER DISASTERS from 1980 to 2011 that caused at least one billion dollars* in damages are plotted by month and year; the size of each half circle represents the cost of the disaster. The ten most costly events are labeled.

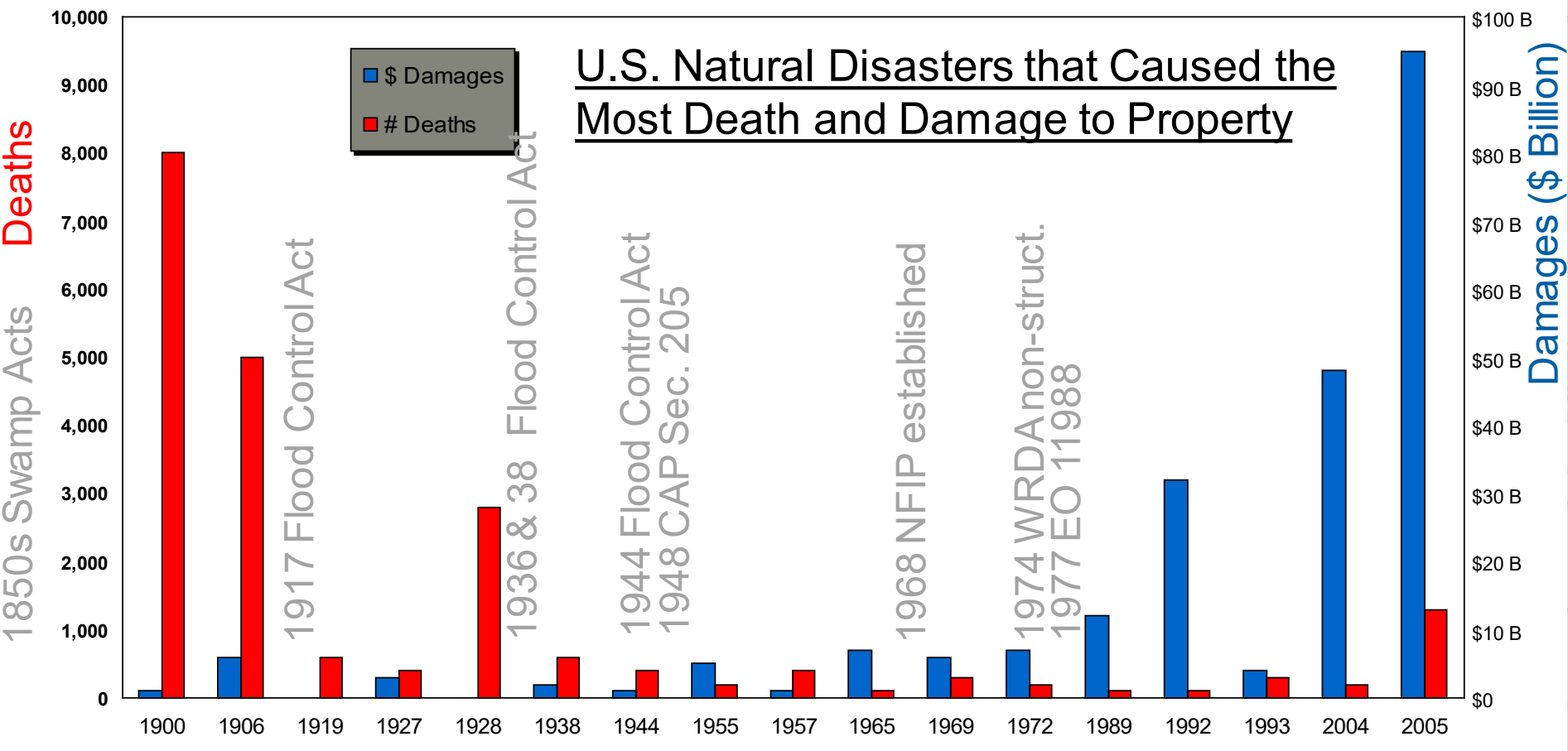
DISASTER TYPE

- Drought/heat wave
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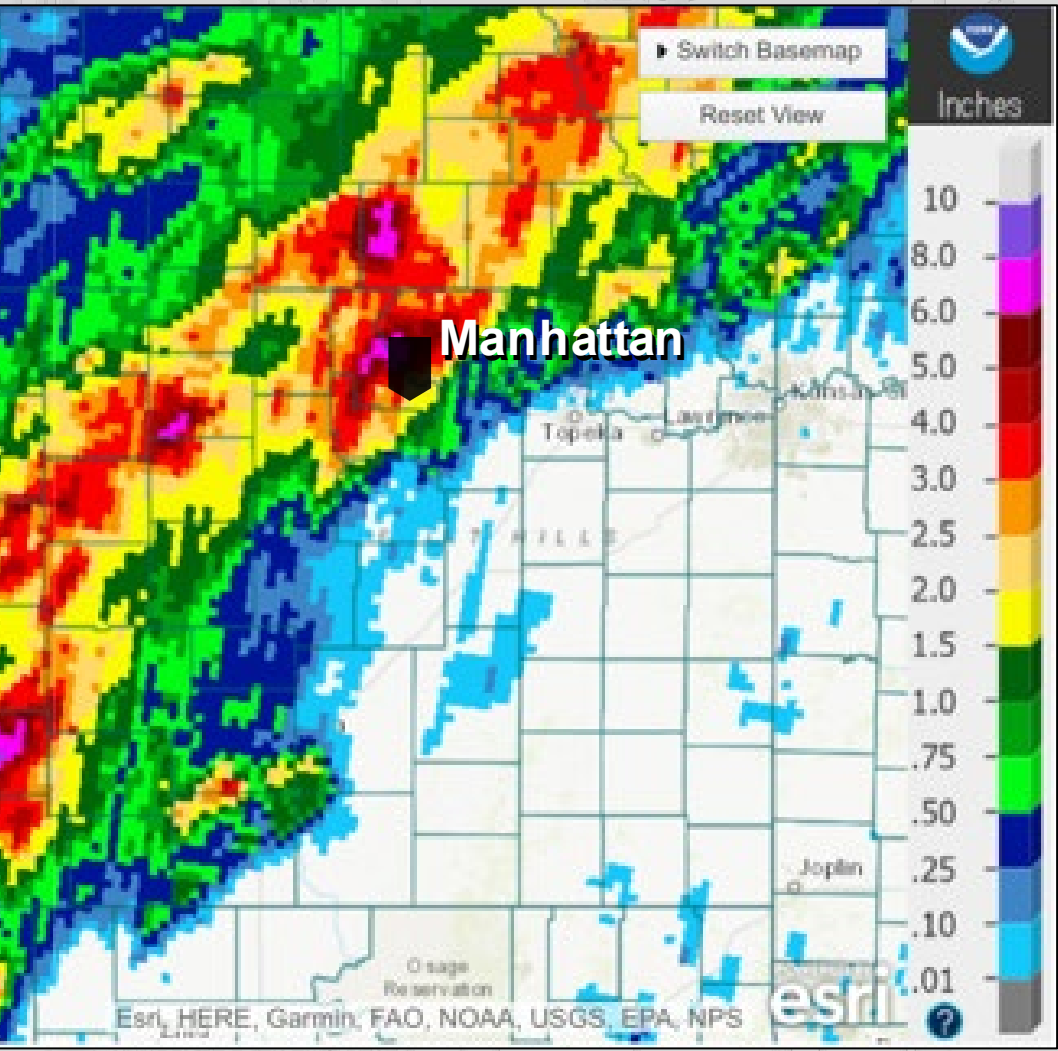
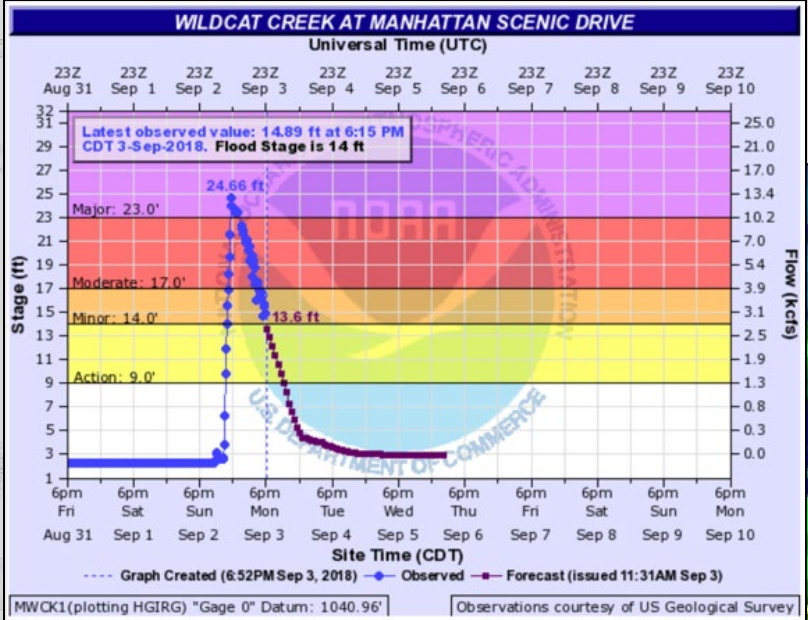
References: National Geographic, "What's Up with the Weather," Sep. 2012
 NOAA, <https://www.ncdc.noaa.gov/billions/events/US/2008-2019>

MAYBE IT IS TIME FOR A CHANGE?



\$167.5 billion, Katrina, 1,833
\$96.3 billion, Maria, 2,981

MANHATTAN, KS – LABOR DAY FLOOD, 3-SEP-2018



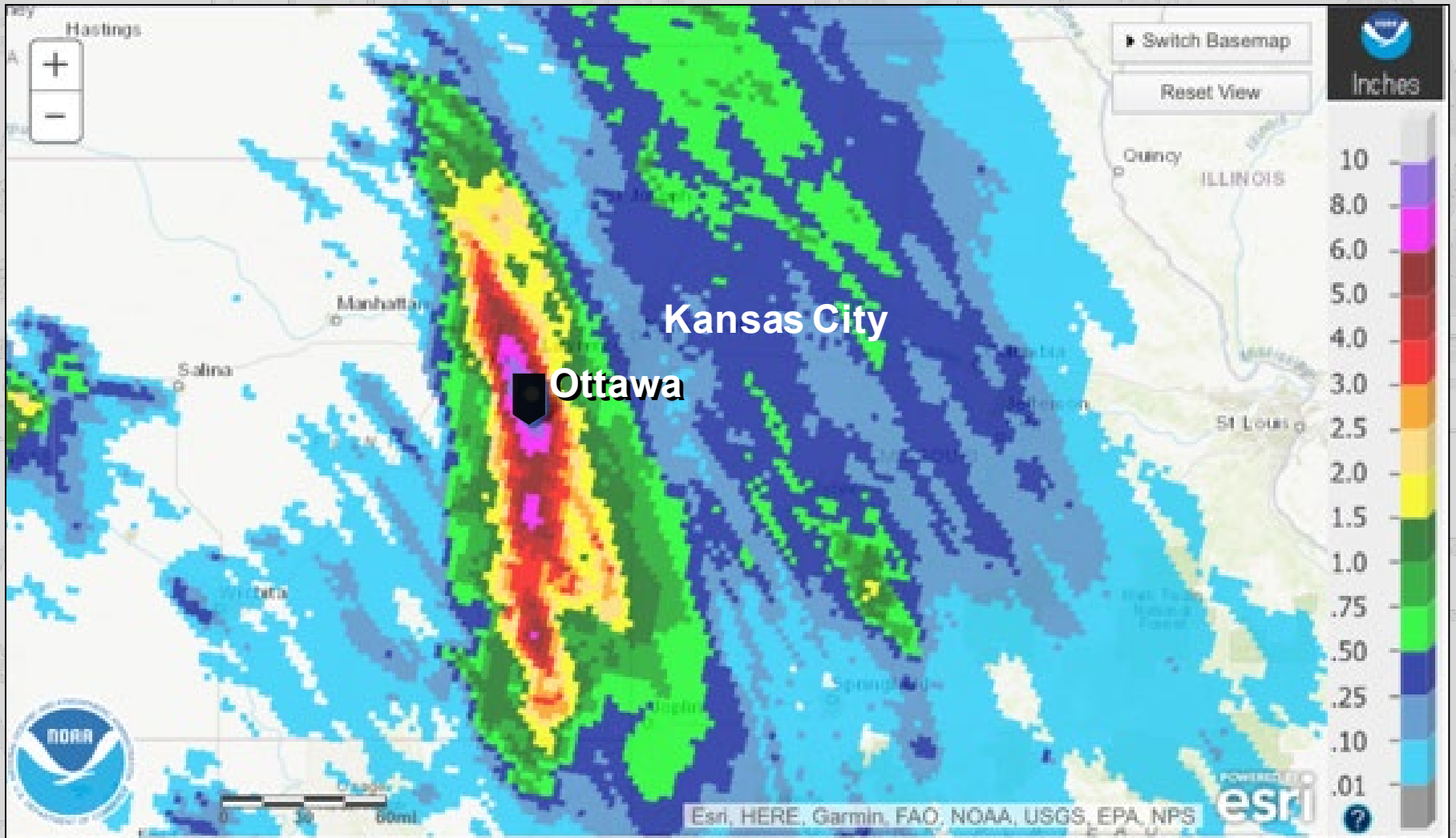
Storm total 8.9 inches

Seth Child Road



Near Scenic Drive





This is a levee



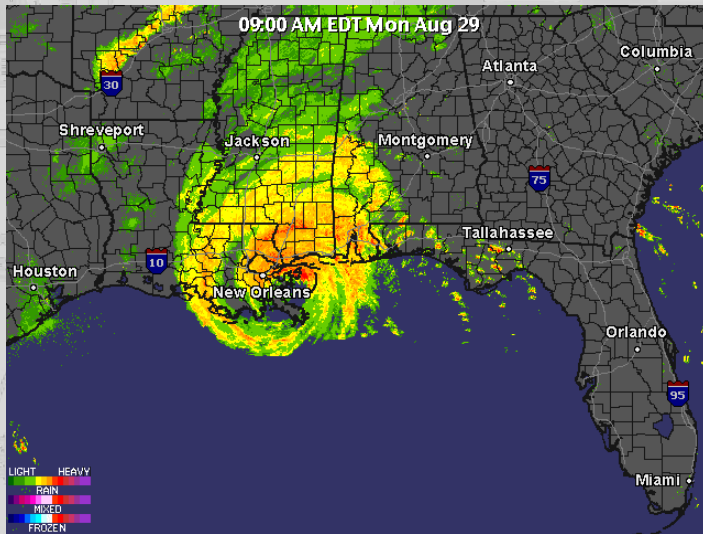
**Storm total
8 to 11 inches
<12 hours
(0.2% ACE)**



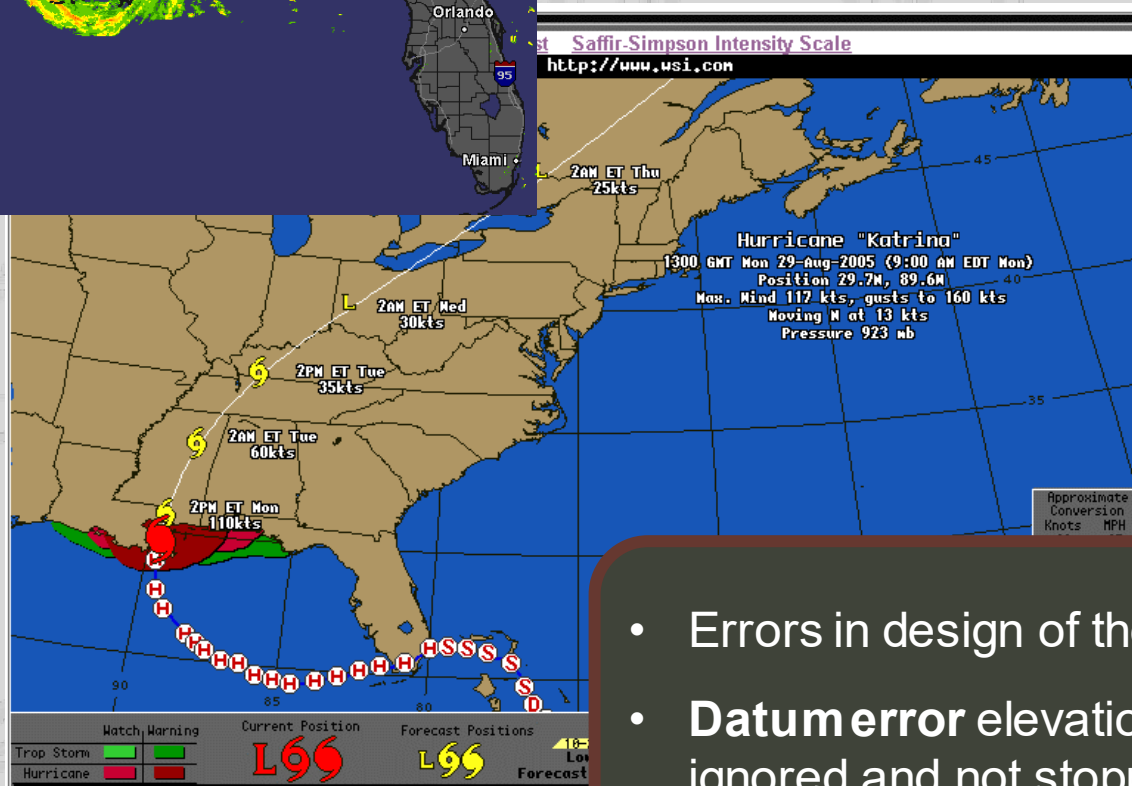
THE TIPPING POINT FOR FLOOD RISK MANAGEMENT AT THE CORPS OF ENGINEERS

No change until we feel the consequences

THE HISTORY OF RISK MANAGEMENT AT USACE



2005: The Corps made mistakes



- Errors in design of the I-wall (floodwall)
- Datum error elevation during a study was ignored and not stopped and reworked

“Flood risk management is a shared responsibility.”

MG Riley and Ed Hecker

MANAGEMENT

FLOOD DAMAGE REDUCTION



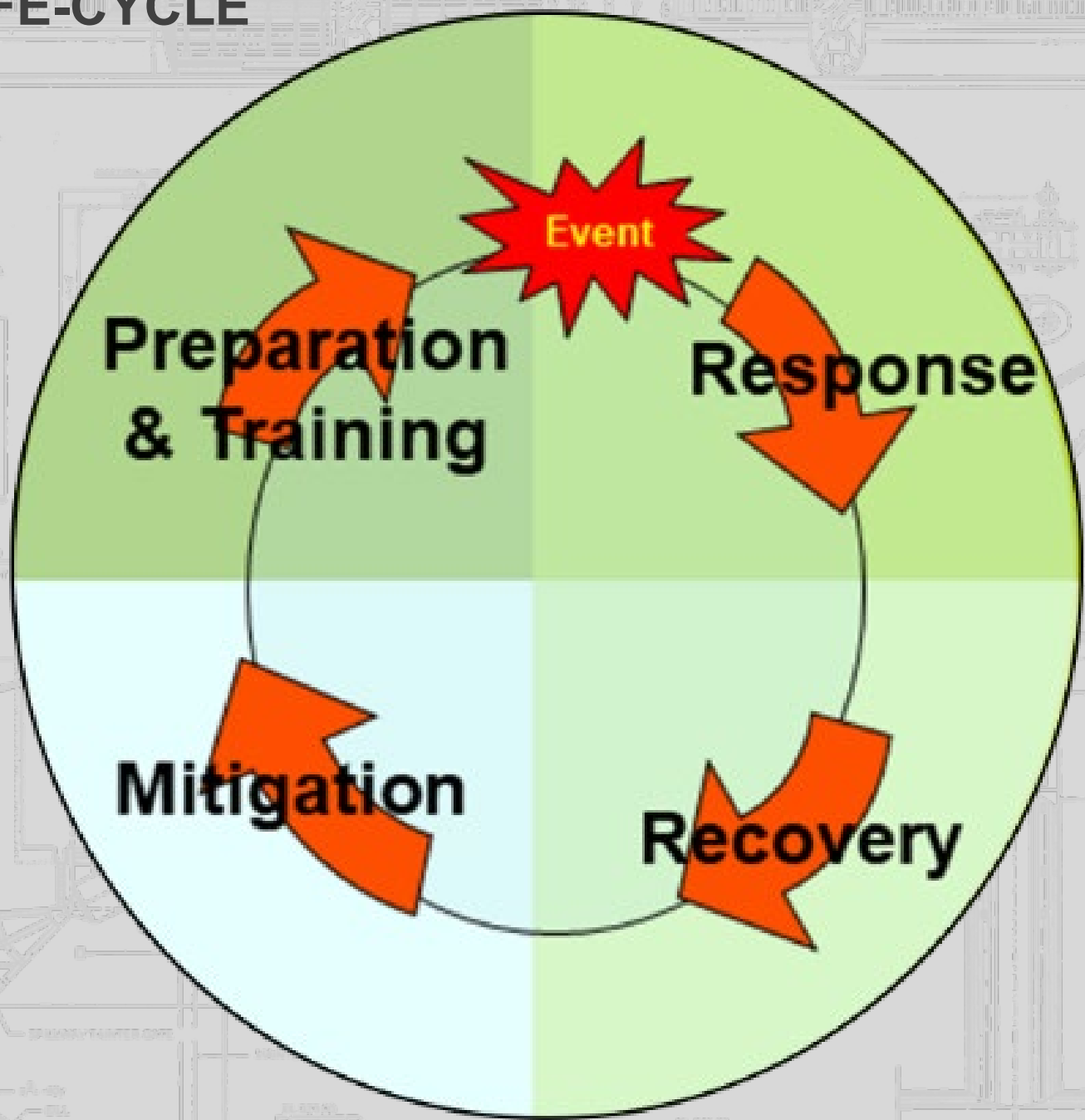
FLOOD CONTROL

From Flood Damage Reduction to Flood Risk Management: Implications for U.S. Army Corps of Engineers Policy and Programs, Institute for Water Resources, May 2014.

The Golden Rules of Strategic Flood Risk Management

1. Accept that absolute protection is not possible and **plan for exceedance**.
2. Promote some flooding as desirable.
3. Base decisions on an understanding of risk and uncertainty.
4. Recognize that the future will be different from the past.
5. Implement a **portfolio** of responses, and do **not** rely on a single measure.
6. **Utilize limited resources efficiently** and fairly to reduce risk.
7. Be clear on **responsibilities** for governance and action.
8. **Communicate** risk and uncertainty effectively and widely.
9. Reflect local context and integrate with other planning processes.

P. Sayers, Y. Li, G. Galloway, E. Penning-Rowsell, F. Shen, K. Wen, Y. Chen, and T. Le Quesne. 2013. *Flood Risk Management: A Strategic Approach*. Paris, UNESCO.



WHAT'S THE TROUBLE WITH VISION

23

“Those who ignore history are doomed to repeat it.”

George
Santayana

“Nothing that results from human progress is achieved with unanimous consent. And those who are enlightened before the others are condemned to pursue that light in spite of others.”

1492 Conquest of Paradise



THE TECHNICAL PARTS OF FLOOD RISK MANAGEMENT

Background you need insight on

FLOOD RISK MANAGEMENT, BASICS

HAZARD

CONSEQUENCE

$$\text{RISK} = \text{PROBABILITY OF HAZARD} \times \text{CONSEQUENCES (dollars, loss of life)}$$

“Flood risk management is a shared responsibility.”

Major General Riley and Ed Hecker



**US Army Corps
of Engineers.**

FLOOD RISK MANAGEMENT, MEASURES

HAZARD

- Reservoir Operations
- Channel Conveyance Modifications
- Bridge Enlargement
- Clearing Snagging & Debris
- Interior Drainage Features

CONSEQUENCE

- Elevating Structures
- Relocation
- Buyout/Aquisition
- Flood Proofing
- Flood Warning System
- Flood Insurance
- Emergency Preparedness Plans
- Land Use Regulation
- Evacuation Plans/Drills
- Zoning
- Communication for Awareness

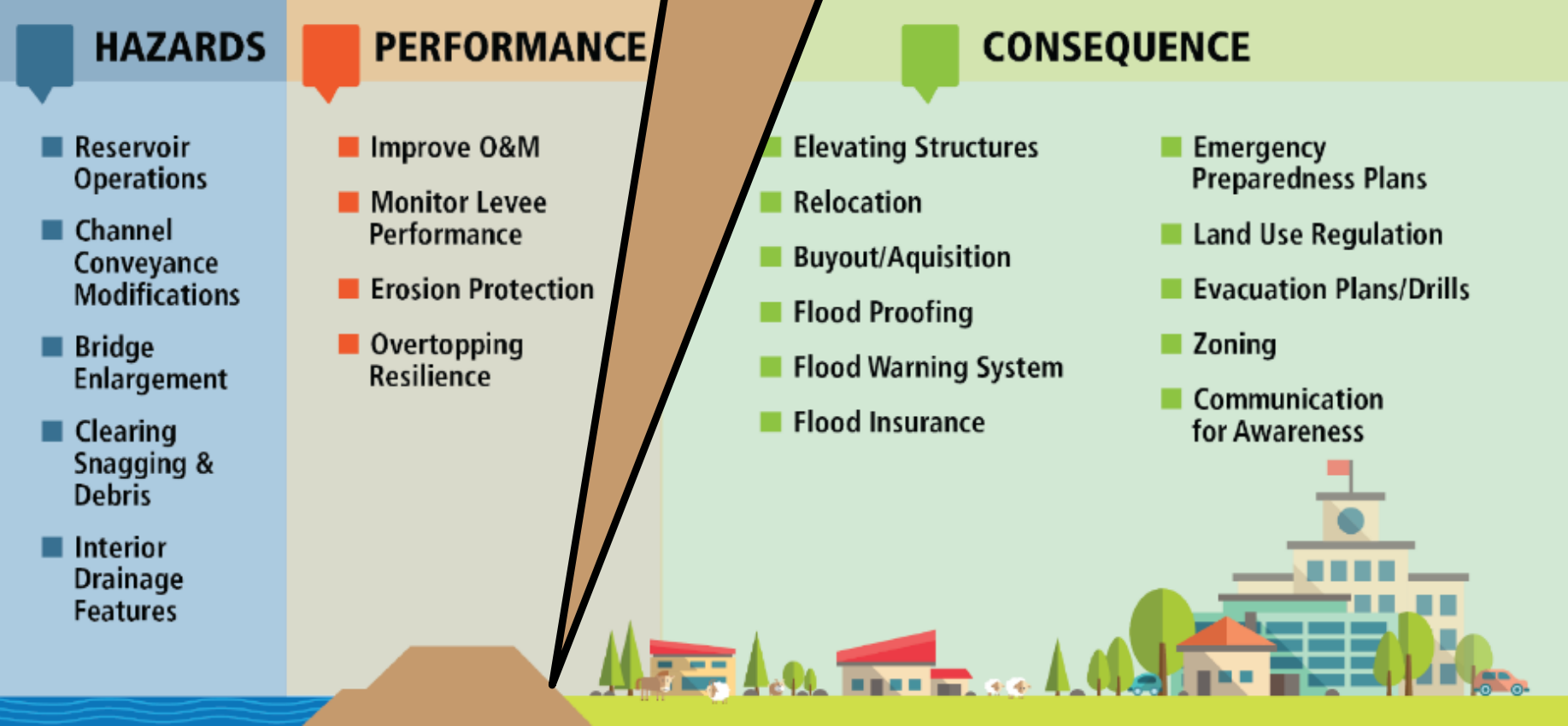


BUILD STRONG



US Army Corps of Engineers.

This is a levee

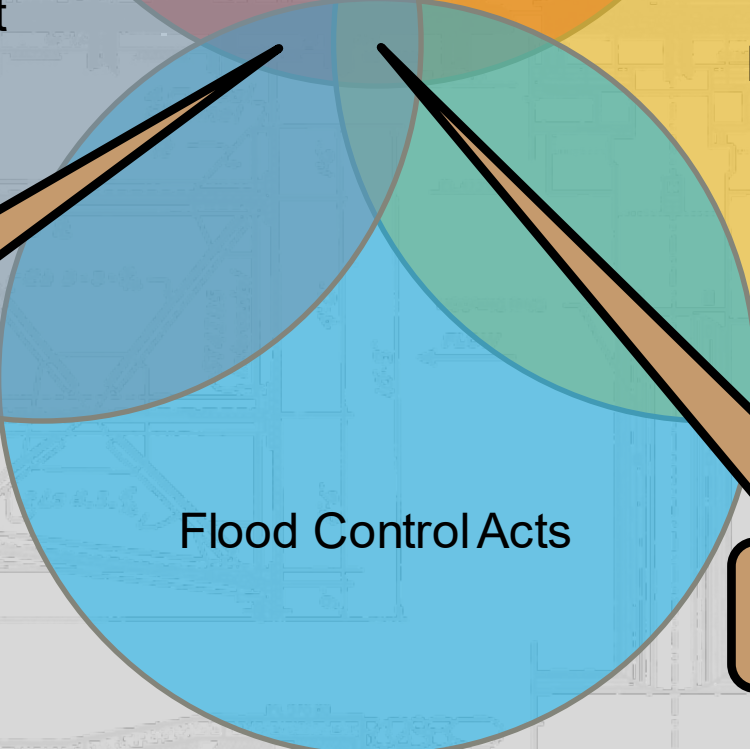
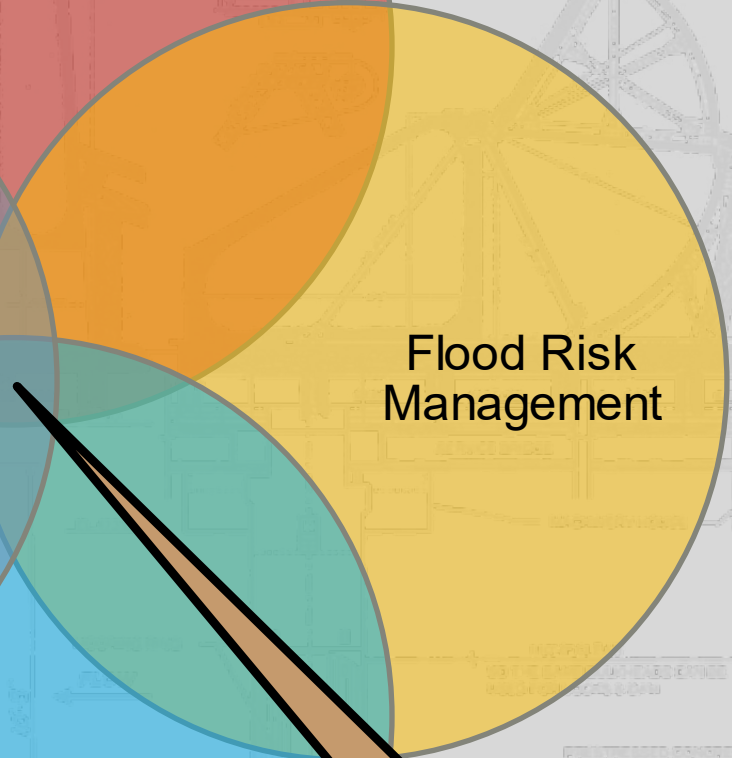
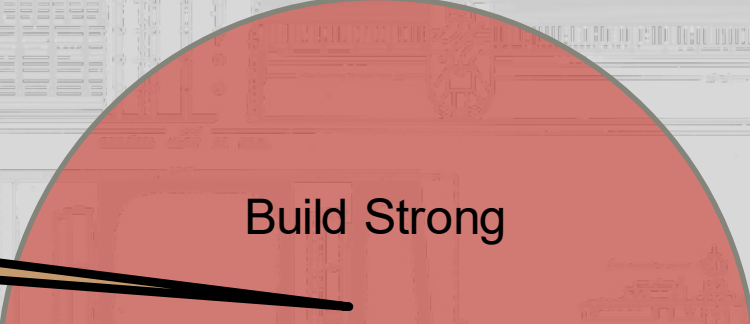


The Sponsor's Guide To the USACE Levee Safety Program
(EP 1105-1-1, June 2018)



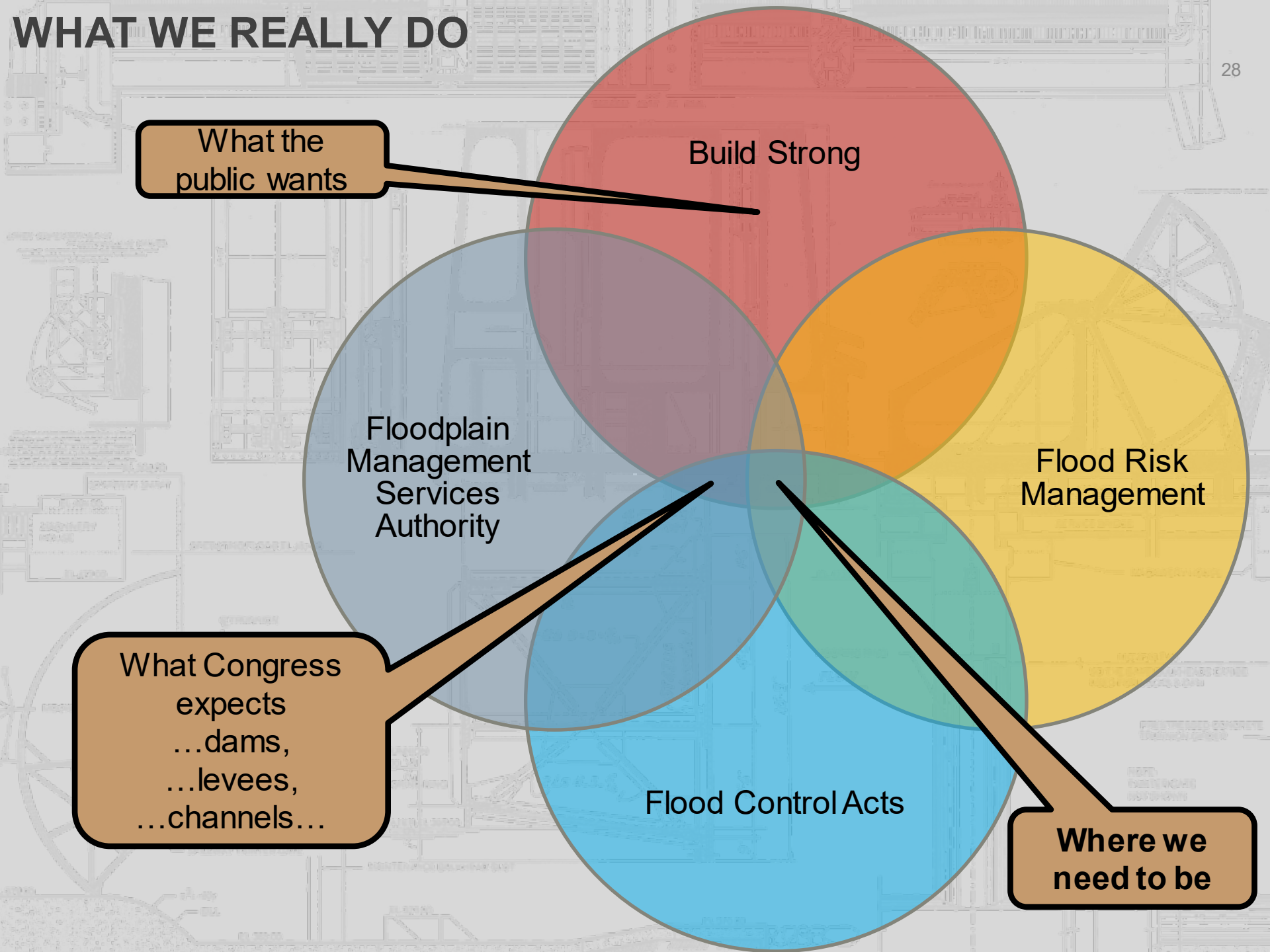
WHAT WE REALLY DO

What the public wants



What Congress expects
...dams,
...levees,
...channels...

Where we need to be





"We've considered every potential risk except the risks of avoiding all risks."

THE MEASURES – HOW YOU GET THERE

The Full Menu of FRM Measures offers solutions.

FLOODWATERS

Physical or structural measures include constructible features such as

- Detention Basins
 - Dams
 - Floodwalls
 - Levees and Berms
 - Channel
 - ◆ Straightening
 - ◆ Widening
 - ◆ Deepening
 - ◆ Diversions
 - Bridge Enlargements
 - Conveyance Modifications
- And these activities
- Clearing and Snagging Debris
 - Pumping
 - Land Treatment And Infiltration

FLOODPLAINS

Nonstructural flood proofing measures include

- Elevation
- Relocation
- Buyout / Acquisition
- Dry Flood Proofing
- Wet Flood Proofing

Nonphysical nonstructural measures include:

- Flood Warning Systems
- Flood Insurance
- Floodplain Mapping
- Flood Emergency Preparedness Plans
- Land Use Regulation
- Zoning
- Evacuation Plans
- Risk Communication

Many Measures



Land Use Policies



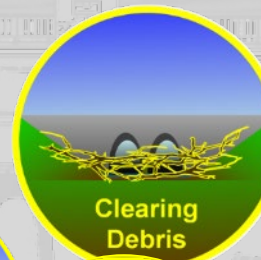
Regulations & Mapping



Beneficial Uses



Community Awareness



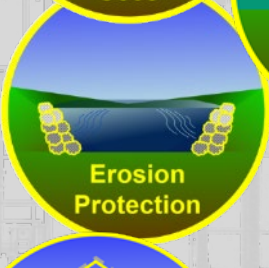
Clearing Debris



Flood Insurance



Building Inspection & Codes



Erosion Protection



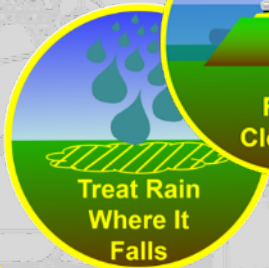
Evacuation Planning



Emergency Management Planning



Flood Warning



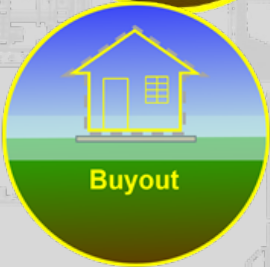
Treat Rain Where It Falls



Road Closings



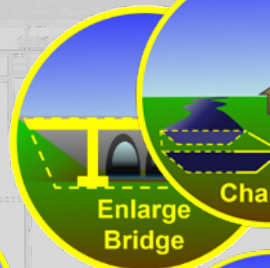
Relocation



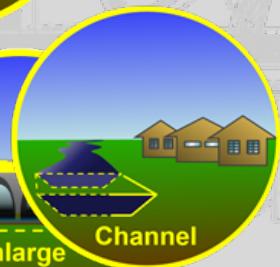
Buyout



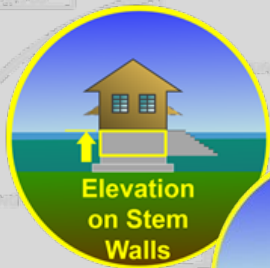
Temporary Barriers



Enlarge Bridge



Channel



Elevation on Stem Walls



Elevation on Piles



Elevation on Fill



Dam / Reservoir



Diversion



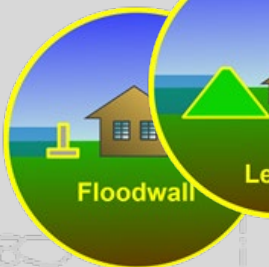
Fill Basement with Main Floor Addition



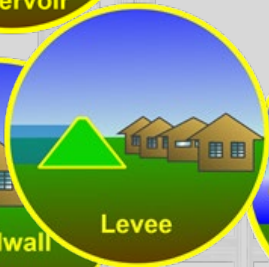
Wet Flood Proofing



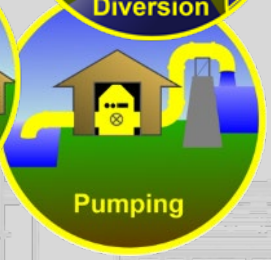
Dry Flood Proofing



Floodwall



Levee



Pumping

EACH MEASURE IS LIKE A SUPERHERO



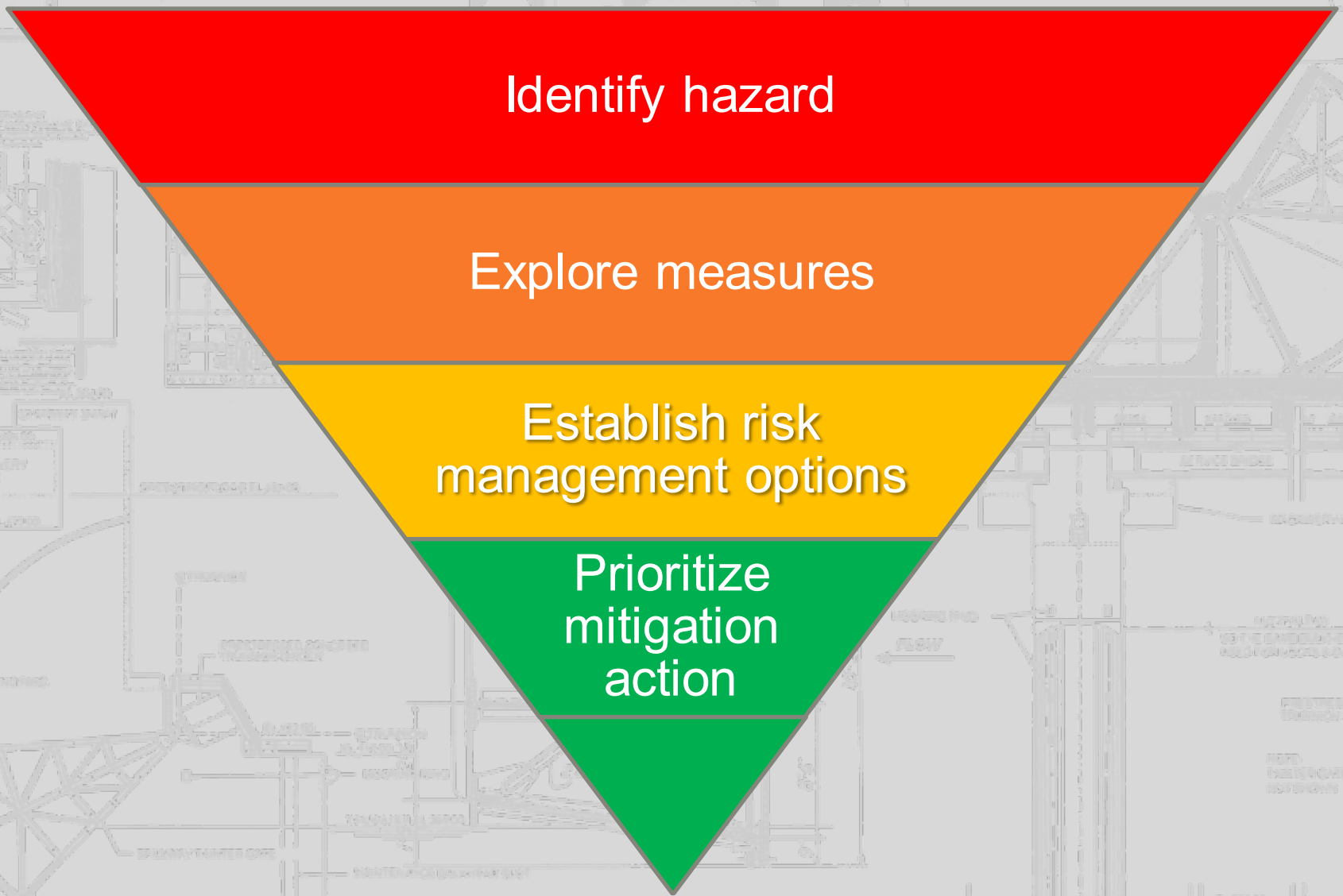


Tunnel Vision



- Land Use Policies
- Regulations & Mapping
- Beneficial Uses
- Community Awareness
- Clearing Debris
- Flood Insurance
- Building Inspection & Codes
- Evacuation Planning
- Emergency Management Planning
- Flood Warning
- Road Closings
- Erosion Protection
- Treat Rain Where It Falls
- Relocation
- Buyout
- Temporary Barriers
- Channel
- Enlarge Bridge
- Elevation on Stem Walls
- Elevation on Piles
- Dam / Reservoir
- Diversion
- Elevation on Fill
- Fill Basement with Main Floor Addition
- Wet Flood Proofing
- Dry Flood Proofing
- Floodwall
- Levee
- Pumping

WHAT'S THE RIGHT SET OF MEASURES?



Identify hazard

Explore measures

Establish risk management options

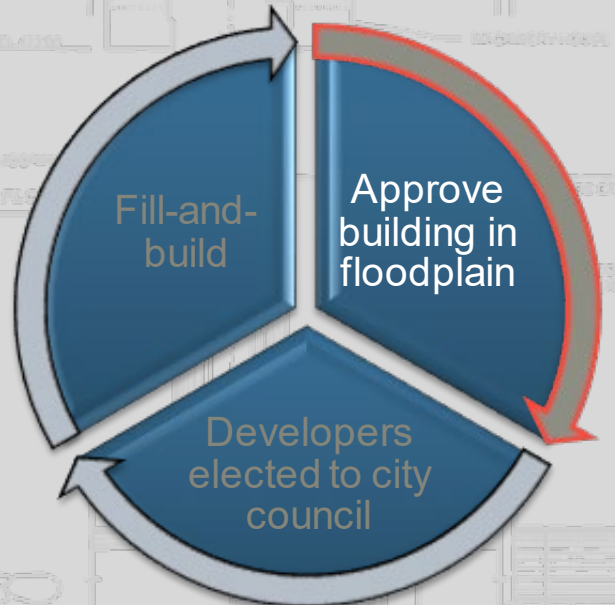
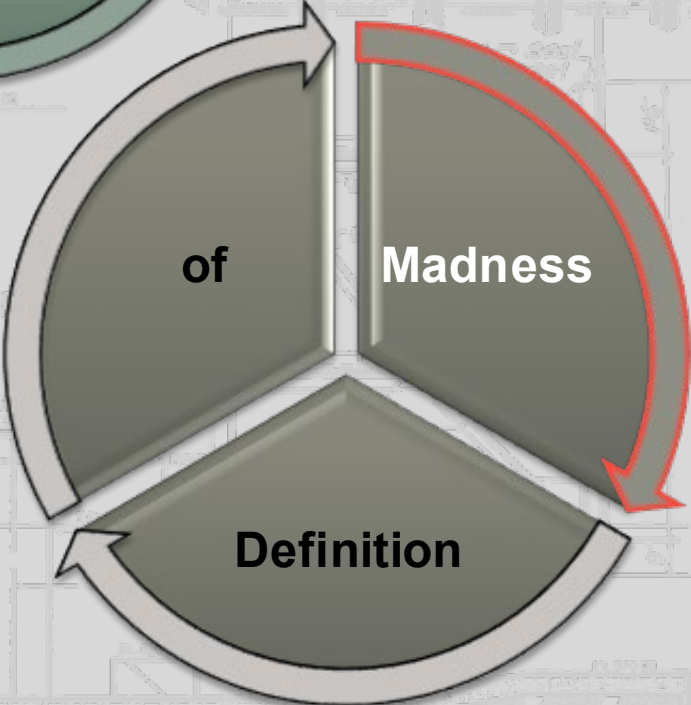
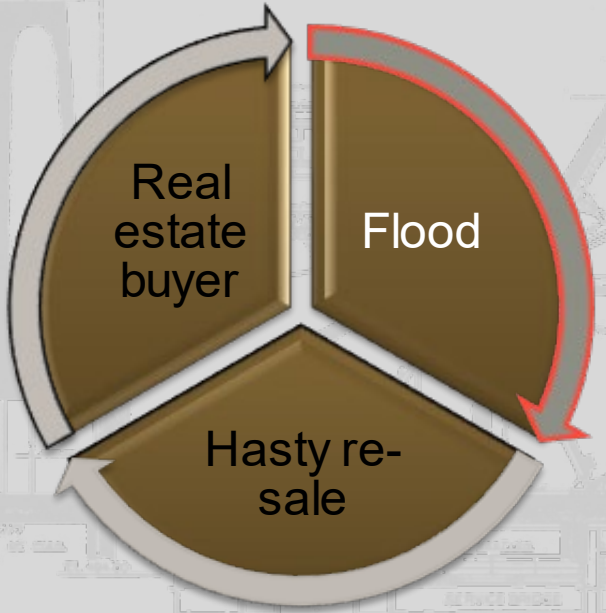
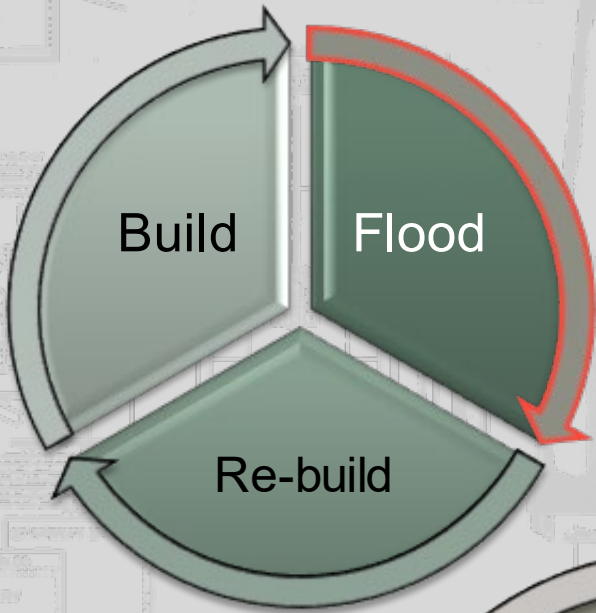
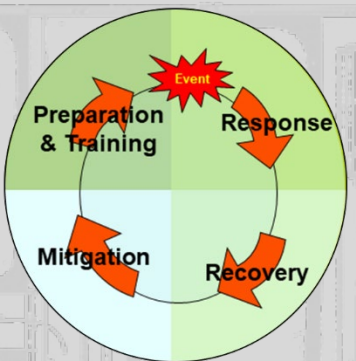
Prioritize mitigation action

BEING REACTIVE

We may be our own worse enemy



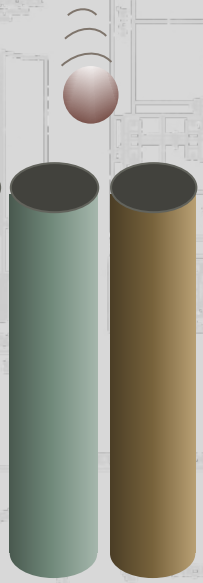
DAMAGING CYCLES



WHAT'S HOLDING US BACK

FLOOD AMNESIA

stove-pipes



preserve the best interests of the organization

Bias for structures as solutions

tunnel vision

Not my problem

Turf battles

PROFIT
PEOPLE

EXECUTE the federal funding

passing the buck

schedule risk

bring in funding to keep my staff paid

Features
Activities

Orphaned initiatives

THE CORPS' TUNNEL VISION

The individual versus the organization

BUILD
STRONG

“MOVE DIRT”

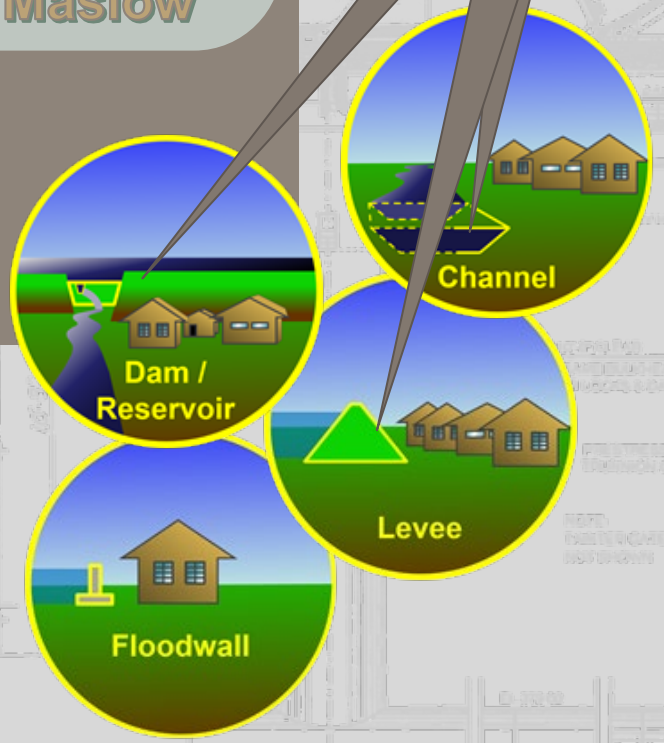
HAMMERS AND NAILS



“...if all you have is a hammer, everything looks like a nail...”

Abraham Maslow

Reduce the risk, but can't eliminate it



“Organizations that are founded to solve problems end up committed to the preservation of those problems.”
Clay Shirky, June 2010 *Wired*



[The Enemy] is too strong. And I lost my hammer...

Thor



You're stronger than me. And you're not the god of hammers.

Odin



OUR INFINITY STONE

Marvel movies meet a book by Carse



1
There are at least two kinds of games.
One could be called finite; the other infinite.
A finite game is played for the purpose of winning,
an infinite game for the purpose
of continuing the play.

2
If a finite game is to be won by someone,
it must come to a definite end. It will come to
an end when someone has won. . . .

FINITE
AND
INFINITE
GAMES

A Vision of Life as
Play and Possibility

JAMES P.
CARSE

The Infinite Game of Flood Risk Management



CHANGING THE CULTURE

Finite

- Focus on floodfights
- Rely on a dam or levee to protect
- Real estate profits
- Any land for development to have more tax base
- Single focus on one agency pursuing solutions

Infinite

- Mitigate flood risks before disasters
- See the importance of a diverse portfolio of measures
- Recognize partnering
 - Federal and state agencies (the patchwork quilt is about the interagency approach) that uses of funding programs
 - Public-private
 - Property owners and individual efforts

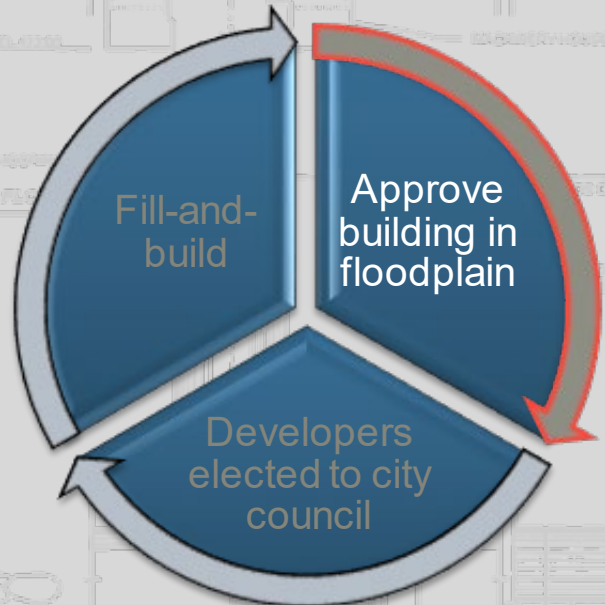
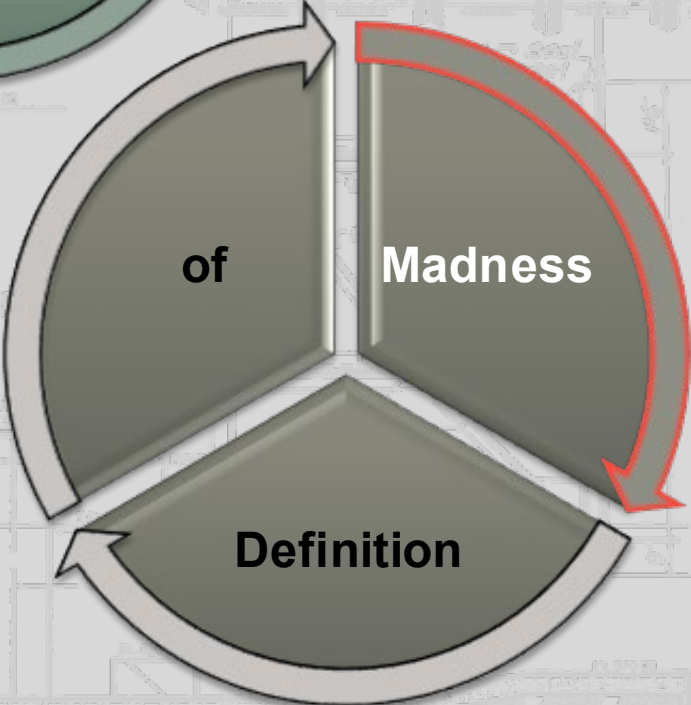
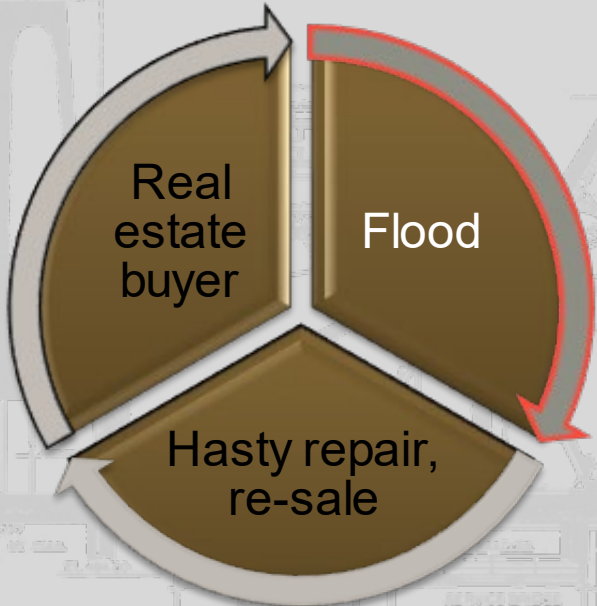
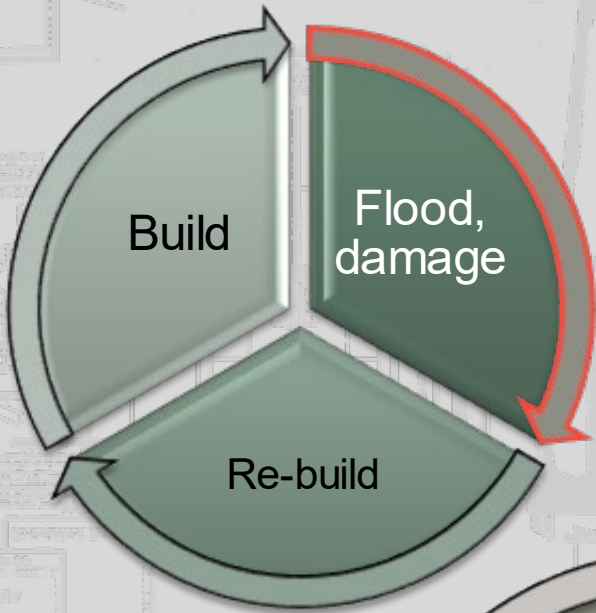
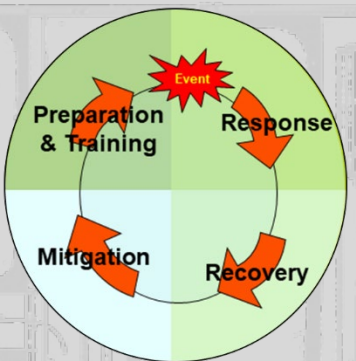


The definition of a “Project”

- 1) *“There are at least two kinds of games. One could be called finite; the other infinite. A finite game is played for the purpose of winning.”*
- 2) *“If a finite game is to be won by someone it must come to a definite end. It will come to an end when someone has won.”*

Use a programmatic approach and sustain the efforts

“...an infinite game for the purpose of continuing the play.”



**Finite
Game:
Losers
every time**

CONTINUOUS BEST PRACTICES



CONTINUOUS BEST PRACTICES



CONTINUOUS BEST PRACTICES



CONTINUOUS BEST PRACTICES



CONTINUOUS BEST PRACTICES



WHAT ELSE CAN WE DO TO REDUCE FLOOD RISKS?

The measures alone are not enough

Many Measures



Land Use Policies



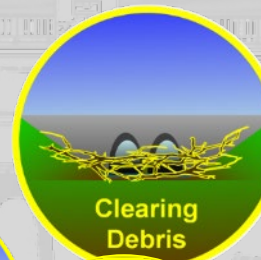
Regulations & Mapping



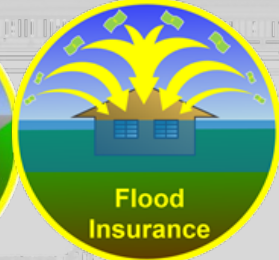
Beneficial Uses



Community Awareness



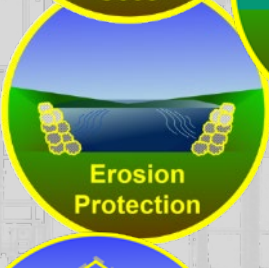
Clearing Debris



Flood Insurance



Building Inspection & Codes



Erosion Protection



Evacuation Planning



Emergency Management Planning



Flood Warning



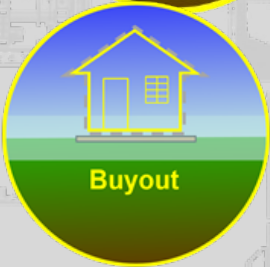
Treat Rain Where It Falls



Road Closings



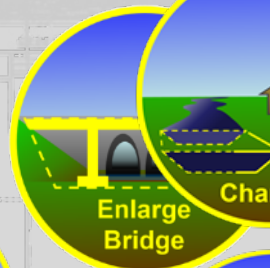
Relocation



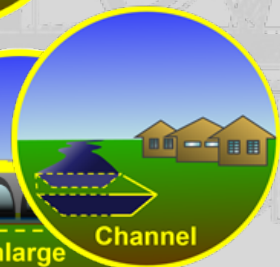
Buyout



Temporary Barriers



Enlarge Bridge



Channel



Elevation on Stem Walls



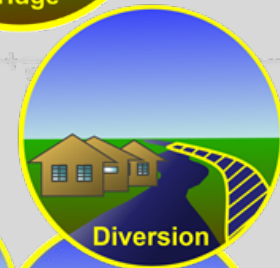
Elevation on Piles



Elevation on Fill



Dam / Reservoir



Diversion



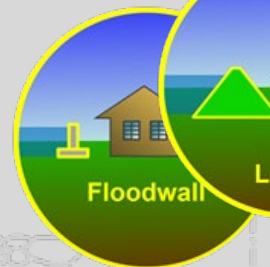
Fill Basement with Main Floor Addition



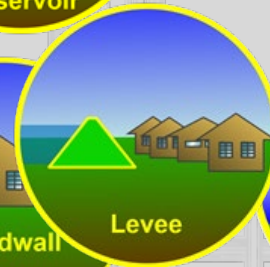
Wet Flood Proofing



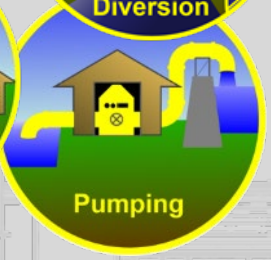
Dry Flood Proofing



Floodwall



Levee



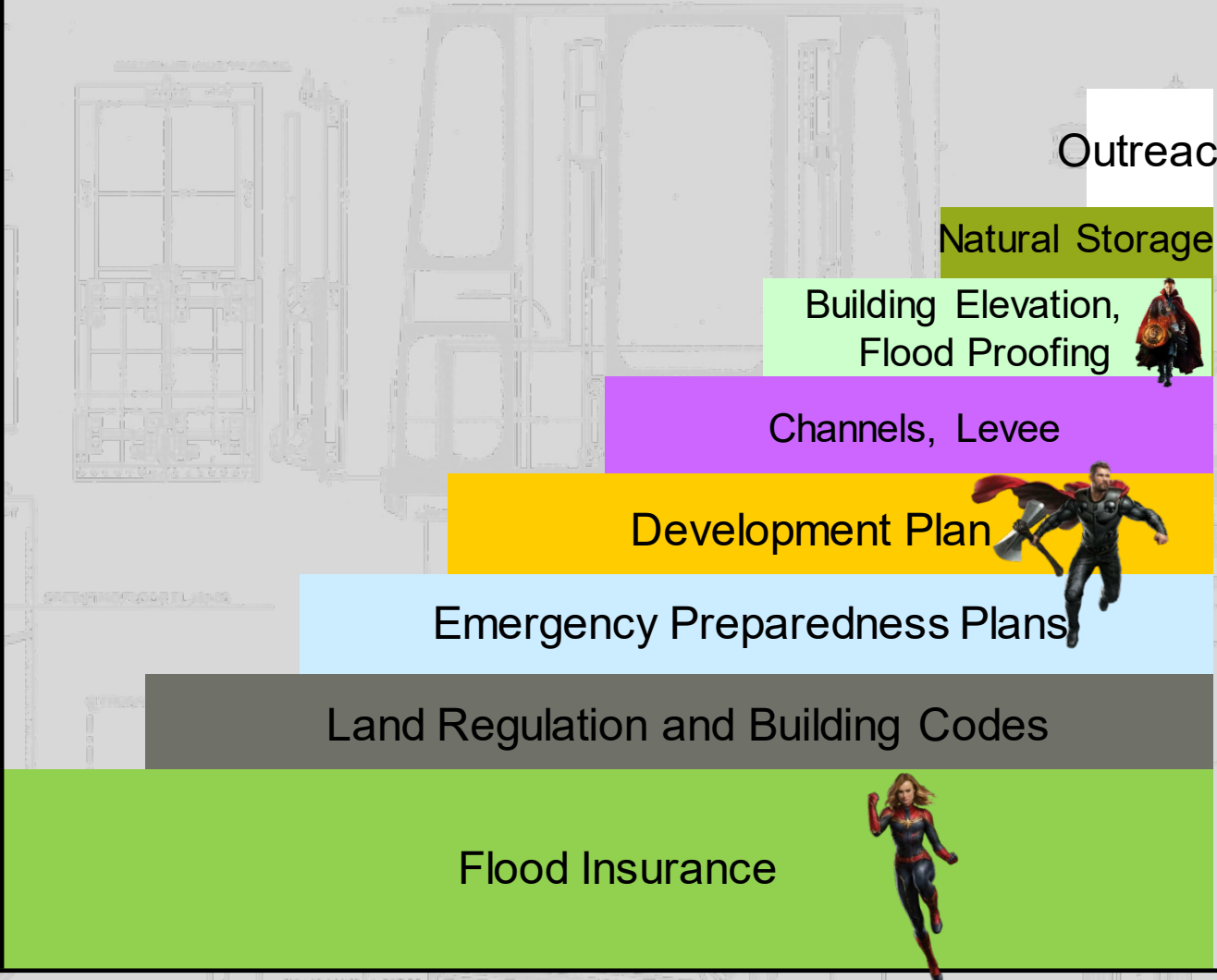
Pumping

IT TAKES A TEAM



HELP COMMUNITIES THRIVE

RESILIENCE



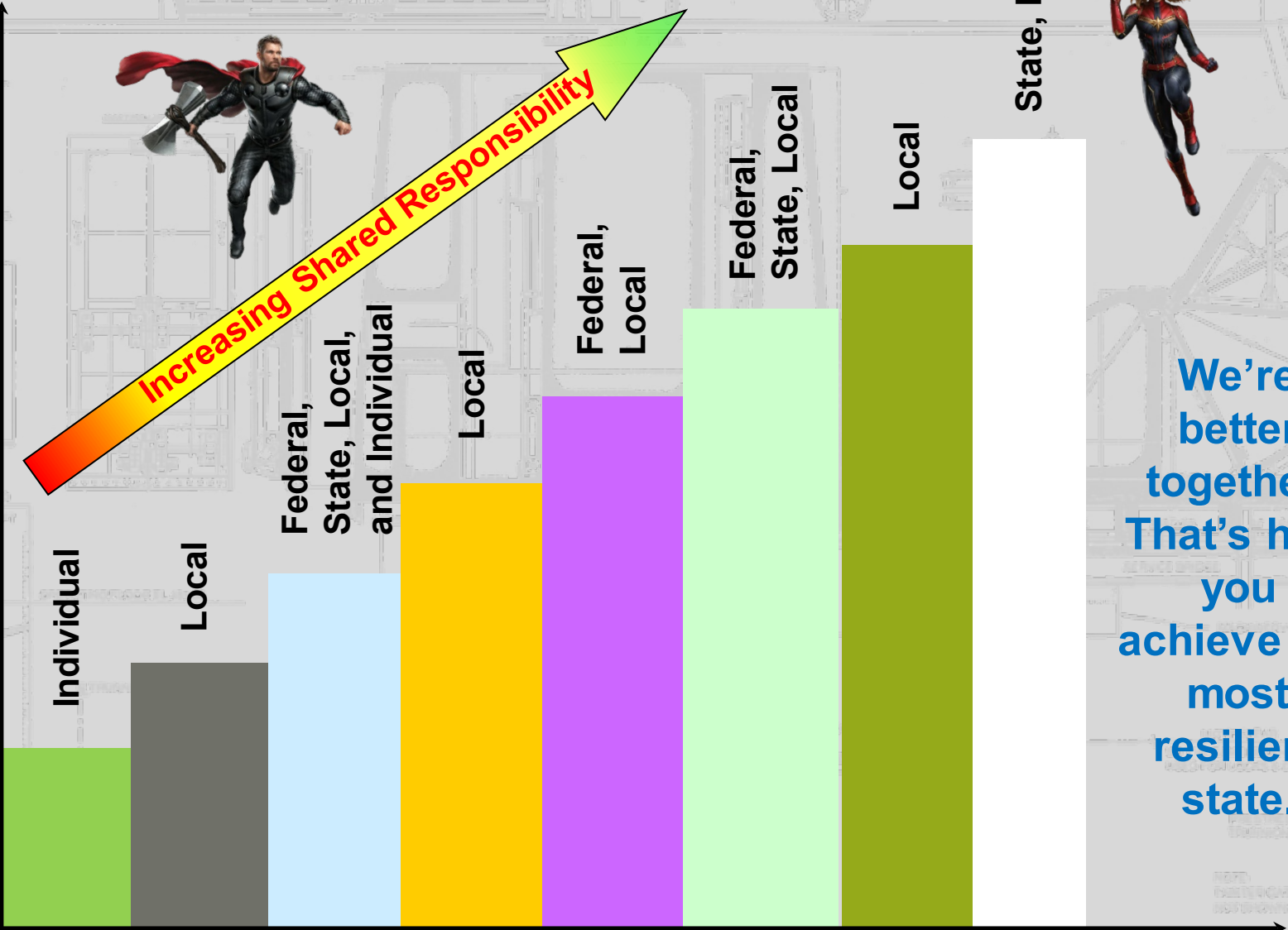
To achieve the highest level of resilience requires collaboration

COMBINED ACTIONS THAT MAY BE DONE OVER TIME

MEASURES & ROLES

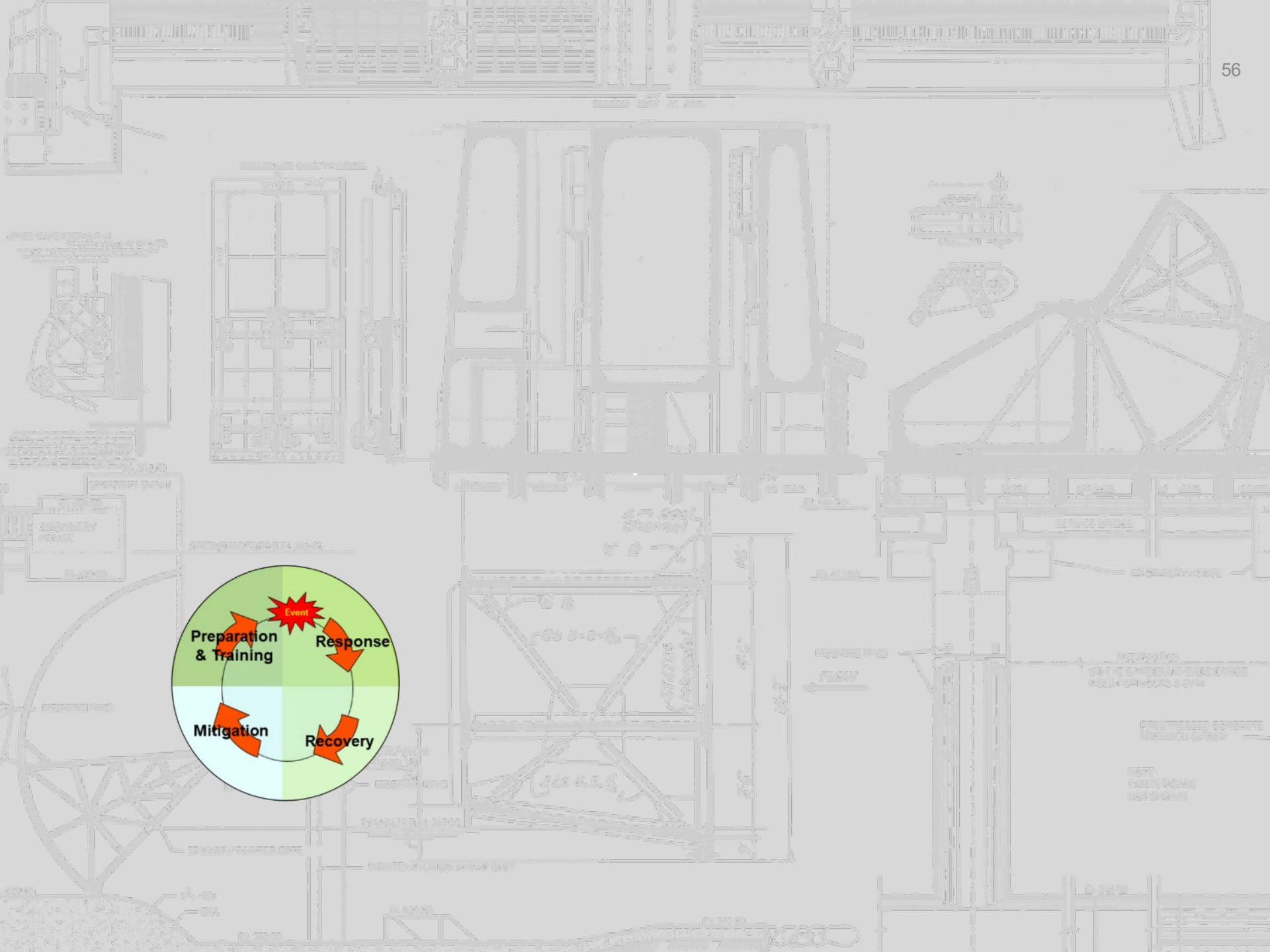


RESILIENCE

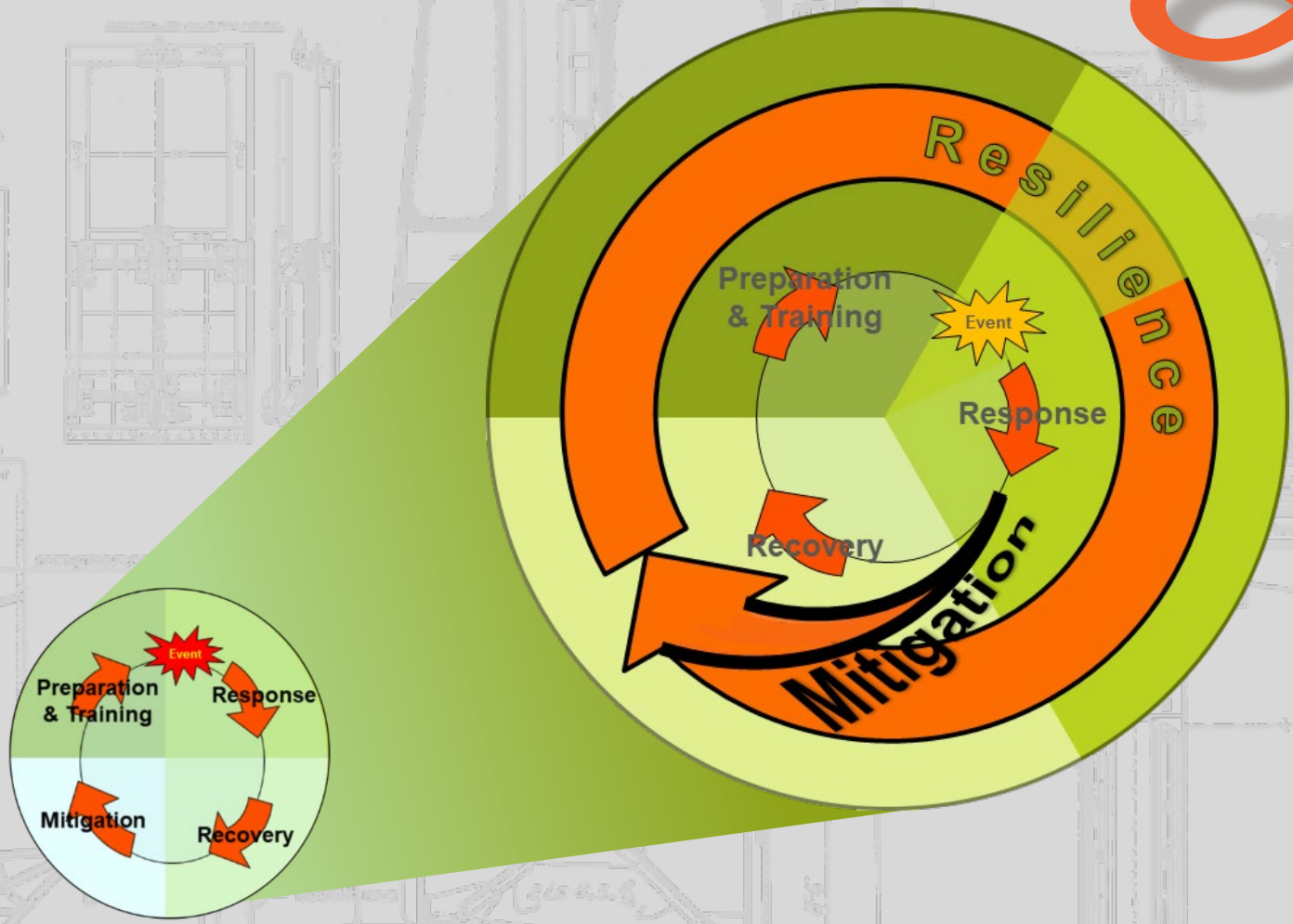


COMBINED ACTIONS THAT MAY BE DONE OVER TIME

We're better together. That's how you achieve the most resilient state.

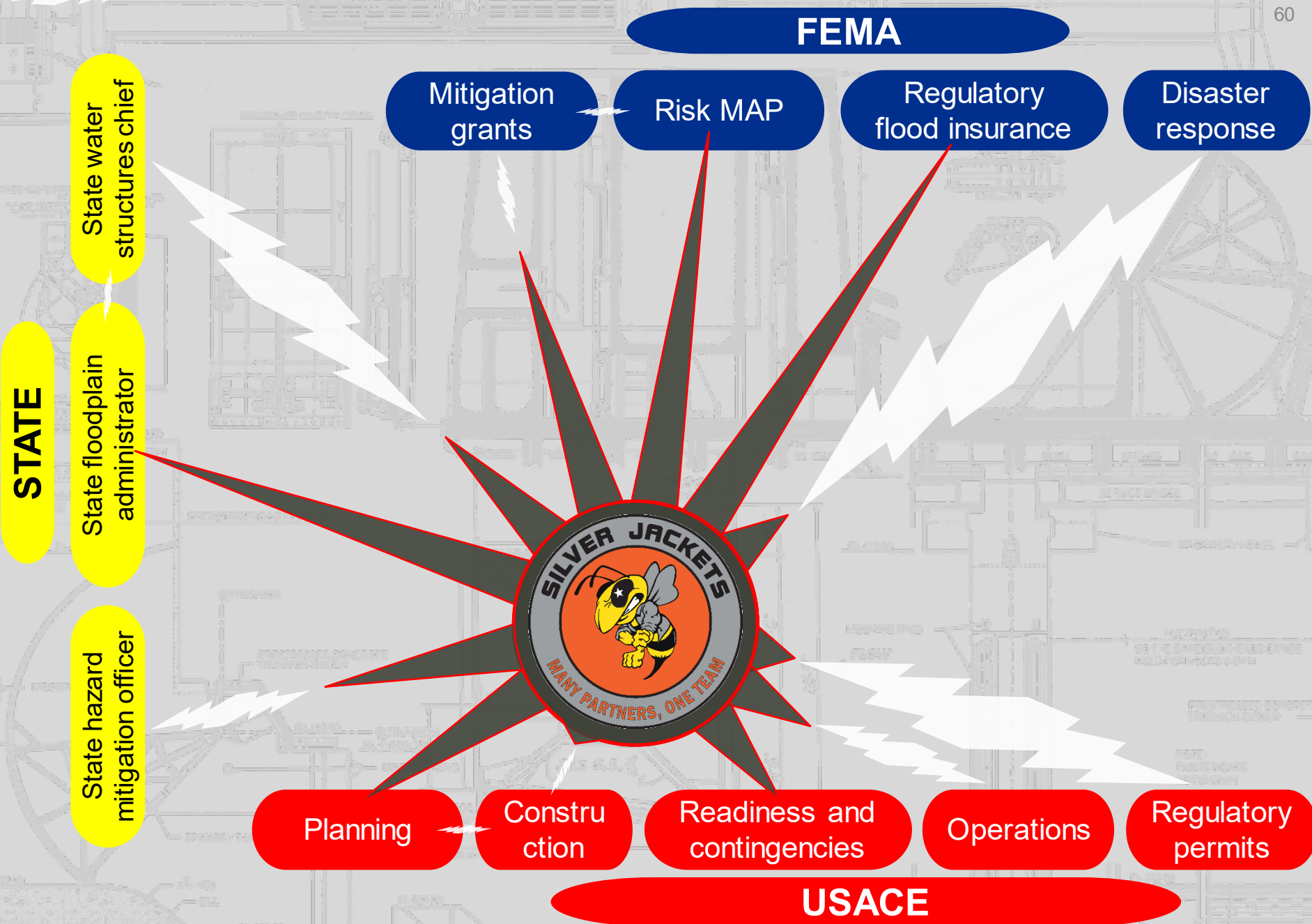


TIME TO BREAK THE CYCLE



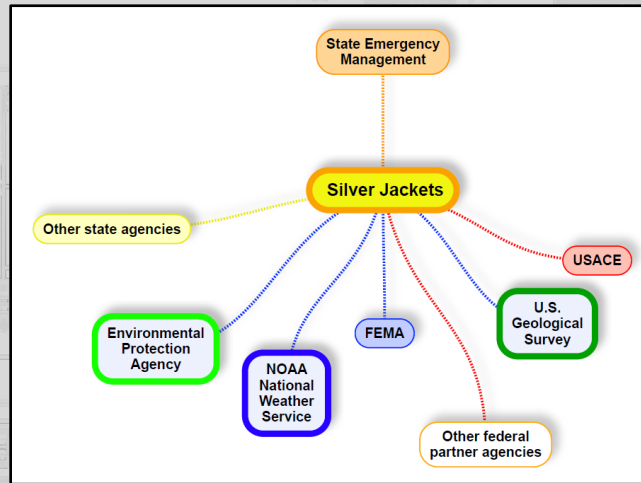


GAPS IN THE INTERAGENCY PARTNERS' ROLES

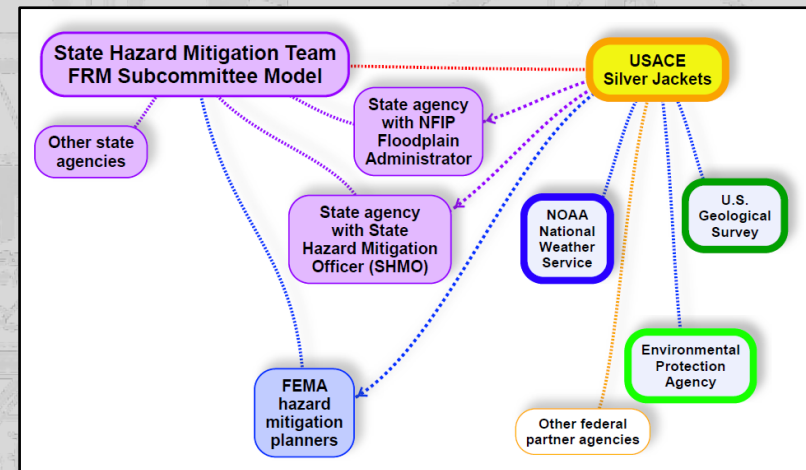


TEAM SETUP FOR SILVER JACKETS

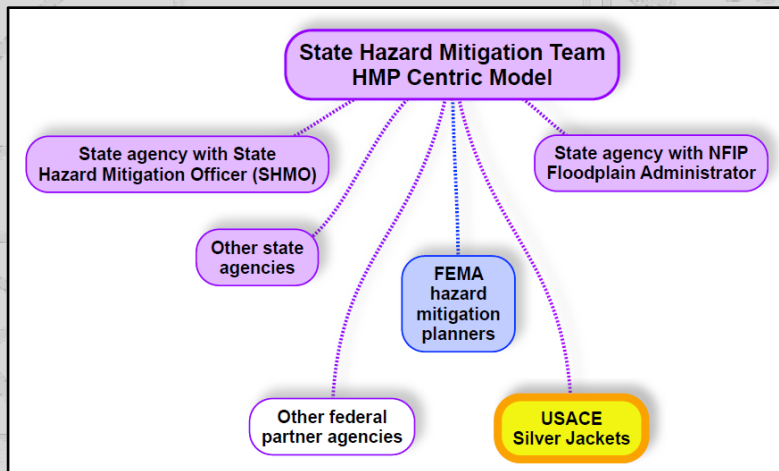
New Teams



Teams Added as Subcommittee



Teams tied to Hazard Mitigation Plan

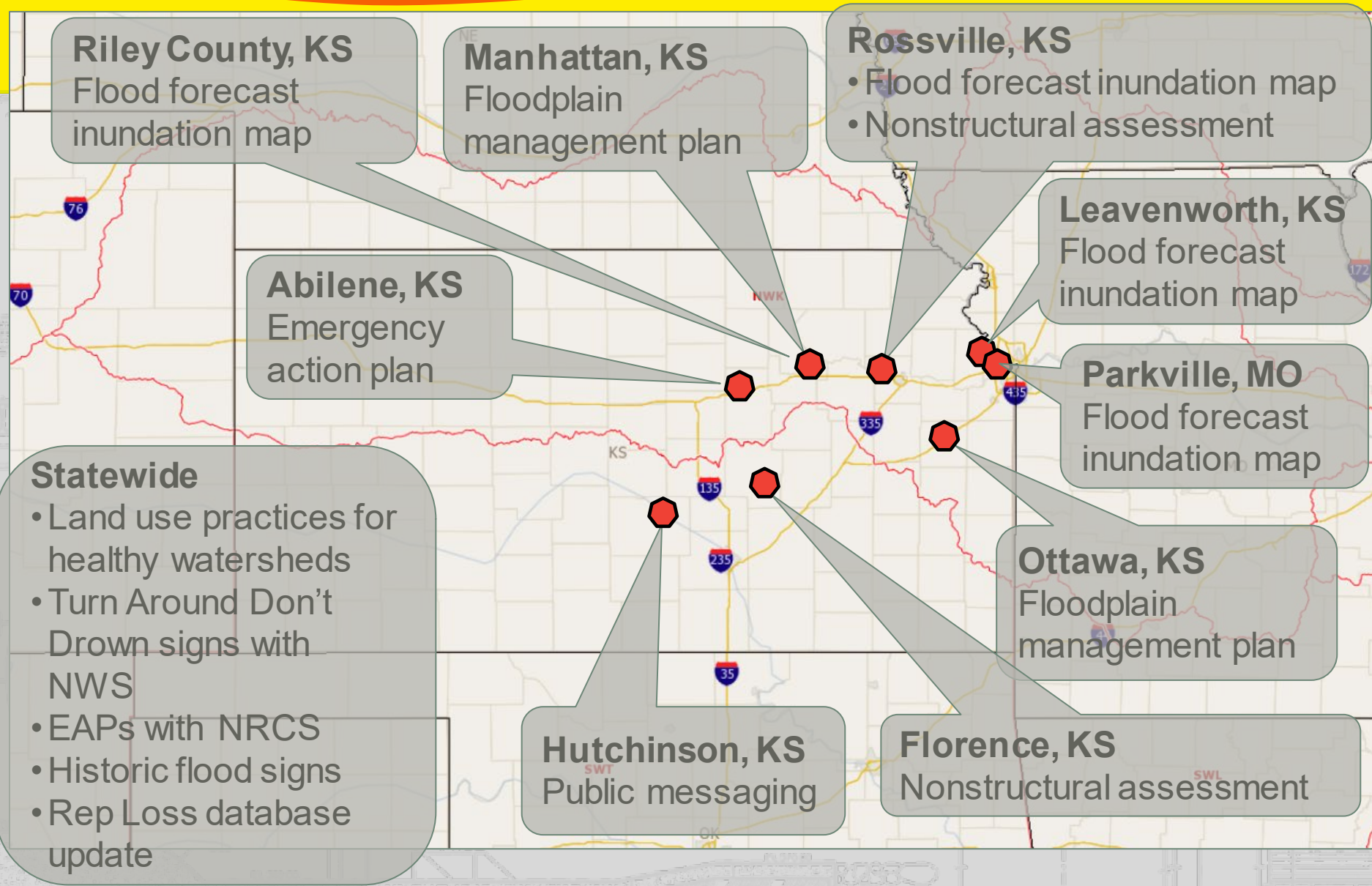


USACE staff receives funding

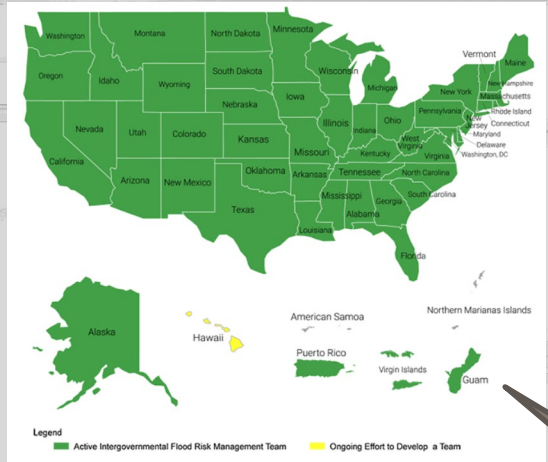
- Team management, \$50k / state
- Annual calls for proposals, \$20k to \$150k

SILVER JACKETS

in **Kansas**



THE REVIEWS ARE VERY POSITIVE



- Most the states of teams
- Over 300 interagency projects have been done

Year	Missouri Budgets	Kansas Budgets
2011		\$134,360
2012	\$83,000	\$45,000
2013	\$115,000	\$70,000
2014	\$60,000	
2015	\$283,920	\$200,000
2016	\$290,000	\$100,000
2017	\$191,739	\$281,739
2018	\$690,000	\$215,000
2019	\$270,000	\$235,000
2020	\$448,500	\$220,000
2021	\$150,000	\$265,000
TOTALS	\$2,582,159	\$1,766,099

States are happy

Ast. Sec. for Army, Civil Works is happy

Congress is happy



QUESTIONS

Discussion

*For all your days prepare
And meet them ever alike,
When you are the anvil bear,
When you are the hammer
strike*

FIND OUT MORE

65

- *USACE National Flood Risk Management Program Initial Guidance*, Memorandum for Commanders, Major Subordinate Commands, October 5, 2009.
- *From Flood Damage Reduction to Flood Risk Management: Implications for U.S. Army Corps of Engineers Policy and Programs*, 2014-R-02, Institute for Water Resources, May 2014.
- *Updated Guidance for the U.S. Army Corps of Engineers National Flood Risk Management Program*, Director's Policy Memorandum Civil Works Programs, DPM CW 2018-04, April 2018.
- USACE Flood Risk Management Program

<https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/Flood-Risk-Management-Program/>

- USACE Silver Jackets Program
- <https://silverjackets.nfrmp.us/>

- *A Unified National Program for Floodplain Management*, Federal Interagency Floodplain Management Task Force, 1994.
- P. Sayers, Y. Li, G. Galloway, E. Penning-Rowsell, F. Shen, K. Wen, Y. Chen, and T. Le Quesne. 2013. *Flood Risk Management: A Strategic Approach*. Paris, UNESCO.

brian.t.rast@usace.army.mil

816-389-3337

PRACTICE WHAT YOU LEARNED TODAY

RACI Matrix and other tools



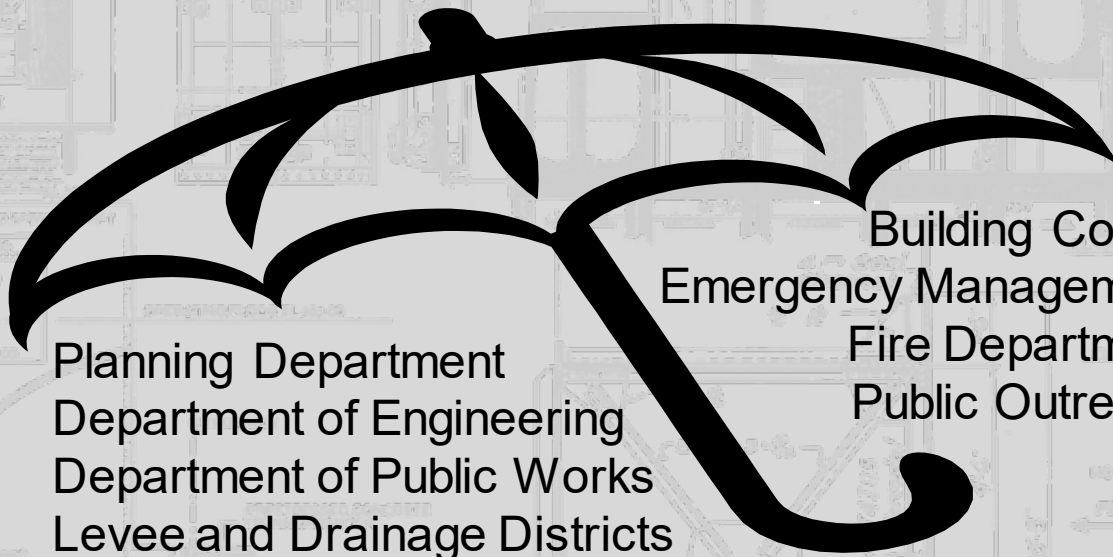
TOOLS

- Flood awareness tools, like flood warning and inundation maps
- Meetings (public or internal)
 - Coordinating dates
 - Facilitating
- Floodplain management plans with
 - Evaluation on all measures
 - RACI matrix
 - Prioritized actions for mitigating flood hazards
- Project management plans
 - Clear scopes
 - Schedule of collaborative work
 - Team members contacts and a clear description of their KSAs contributing



AGENCIES AND COMMUNITIES AND TRIBES NEED THIS FLOOD RISK MANAGEMENT UMBRELLA

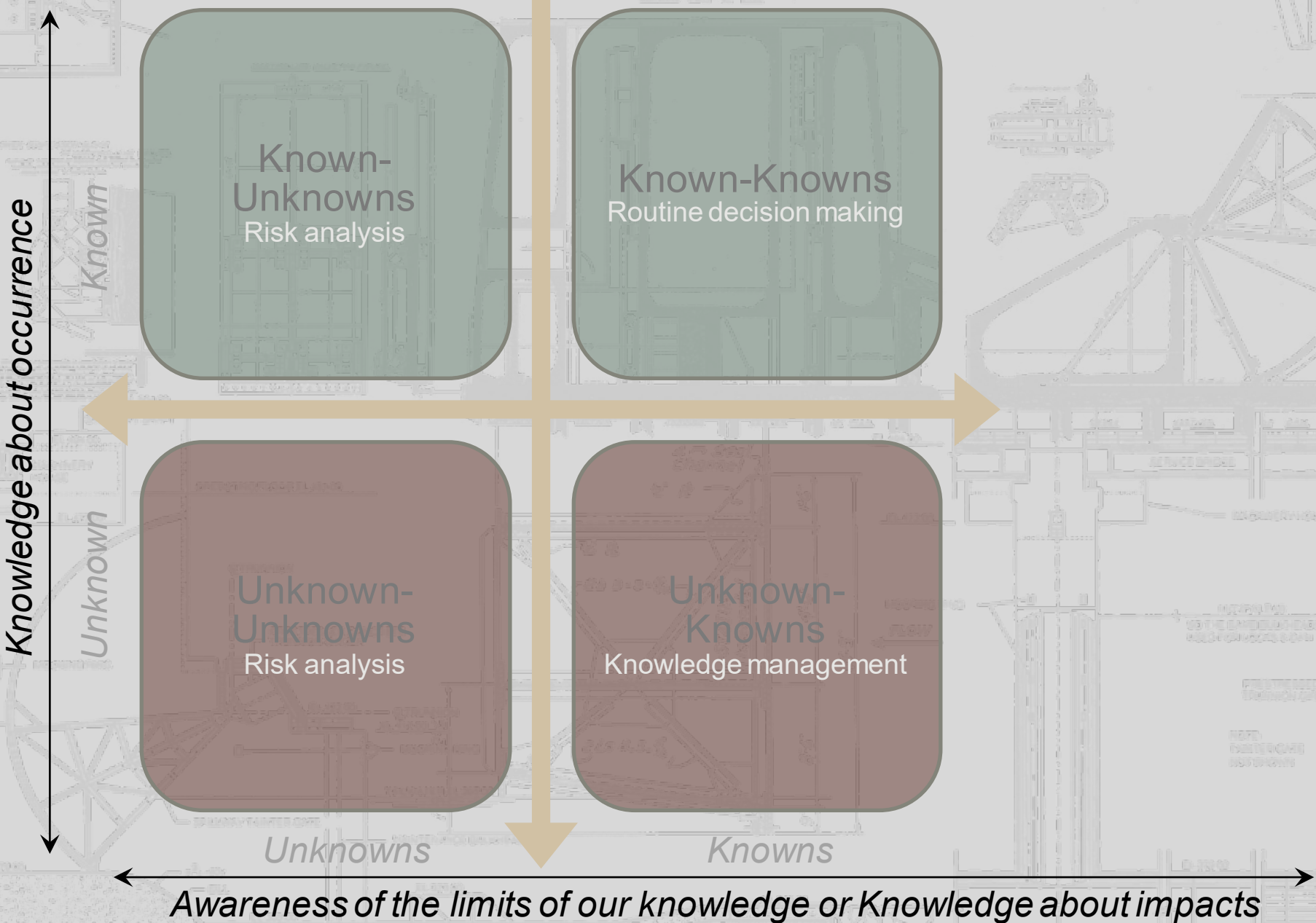
*The levee sponsor, communities, counties and tribes also need a **umbrella program** for all community's programs related to the hazards of flooding.*



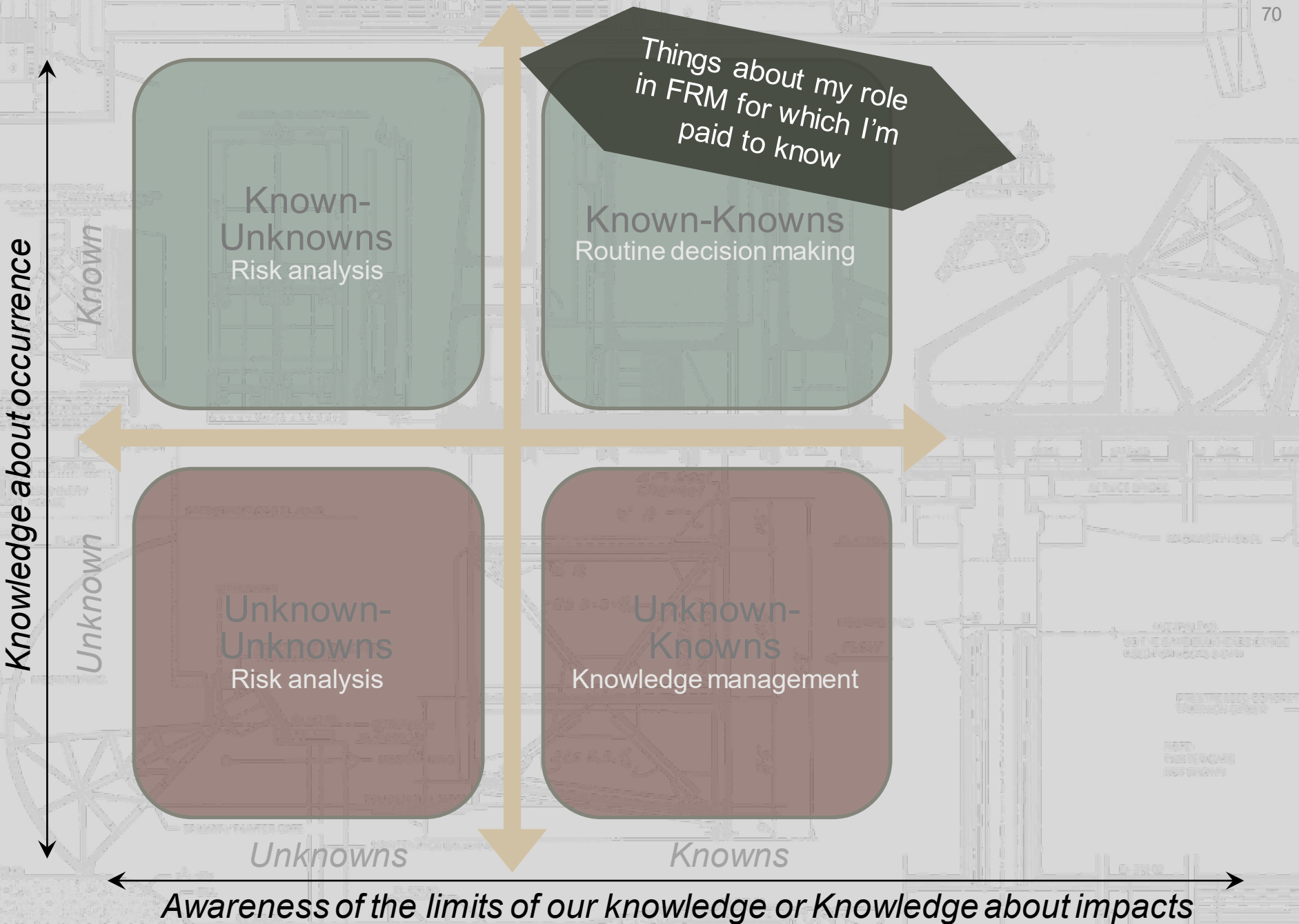
Planning Department
Department of Engineering
Department of Public Works
Levee and Drainage Districts

Building Codes
Emergency Management
Fire Department
Public Outreach

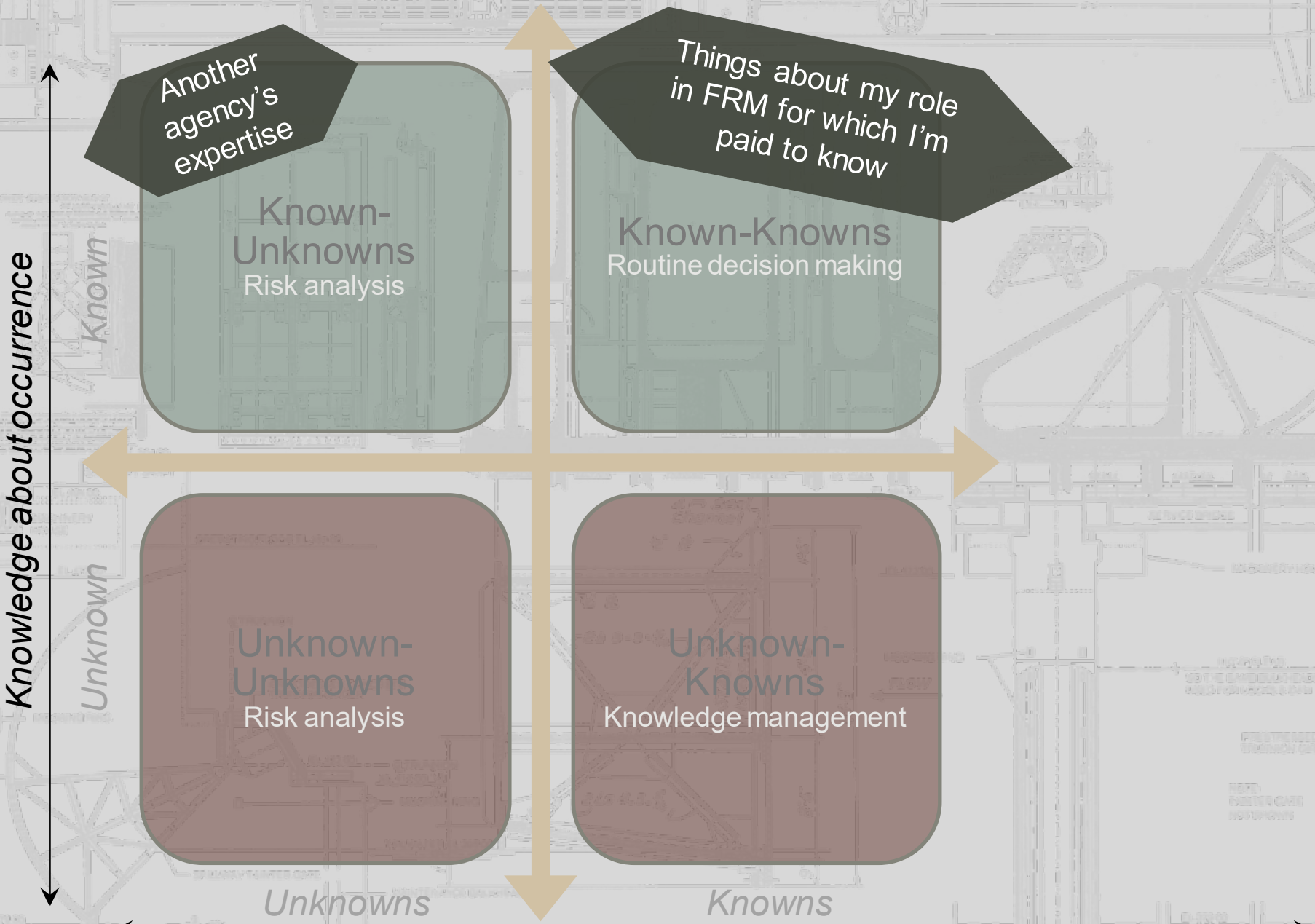
KNOWING ABOUT WHY TO CONSULT AND INFORM



KNOWING ABOUT WHY TO CONSULT AND INFORM

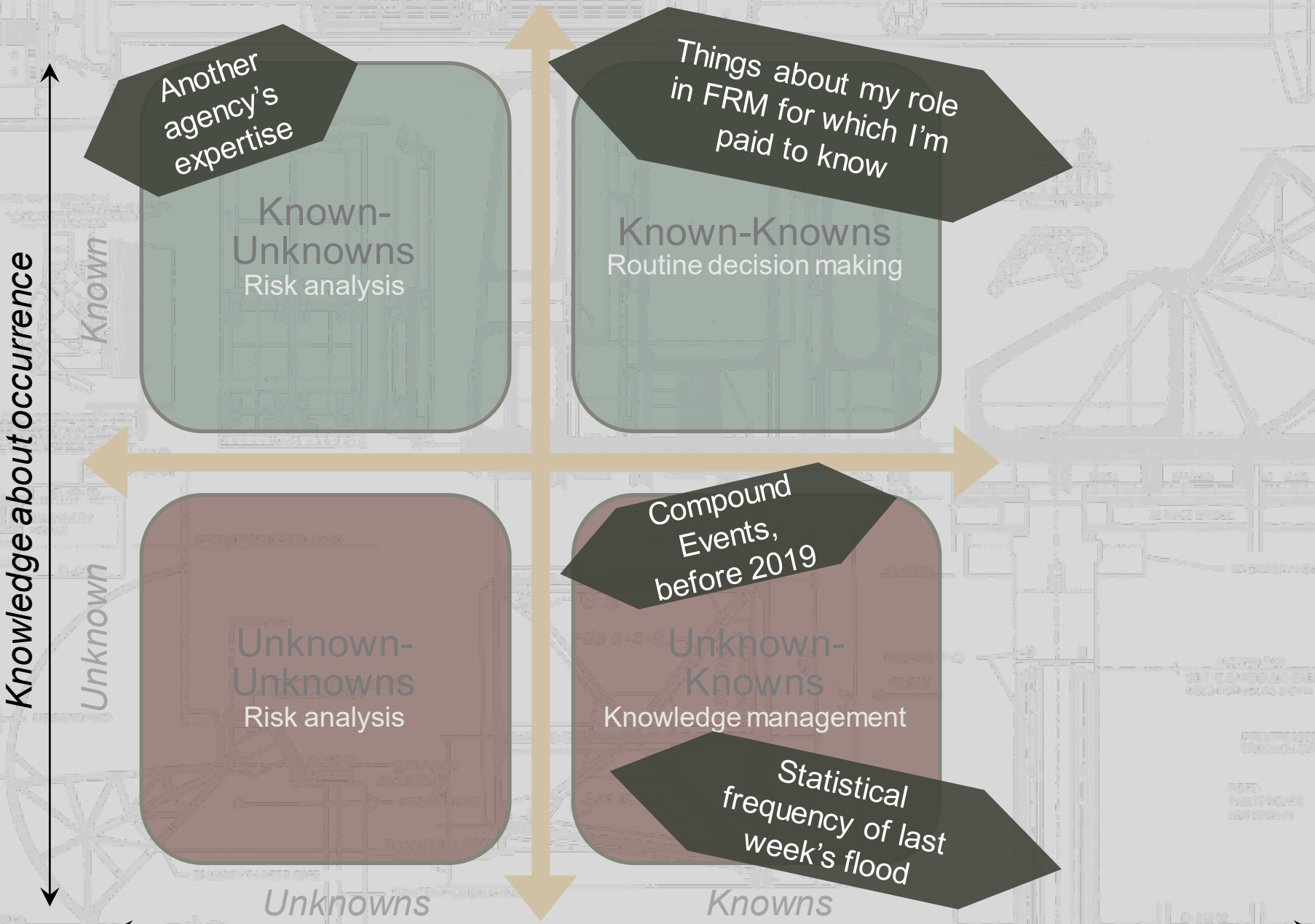


KNOWING ABOUT WHY TO CONSULT AND INFORM



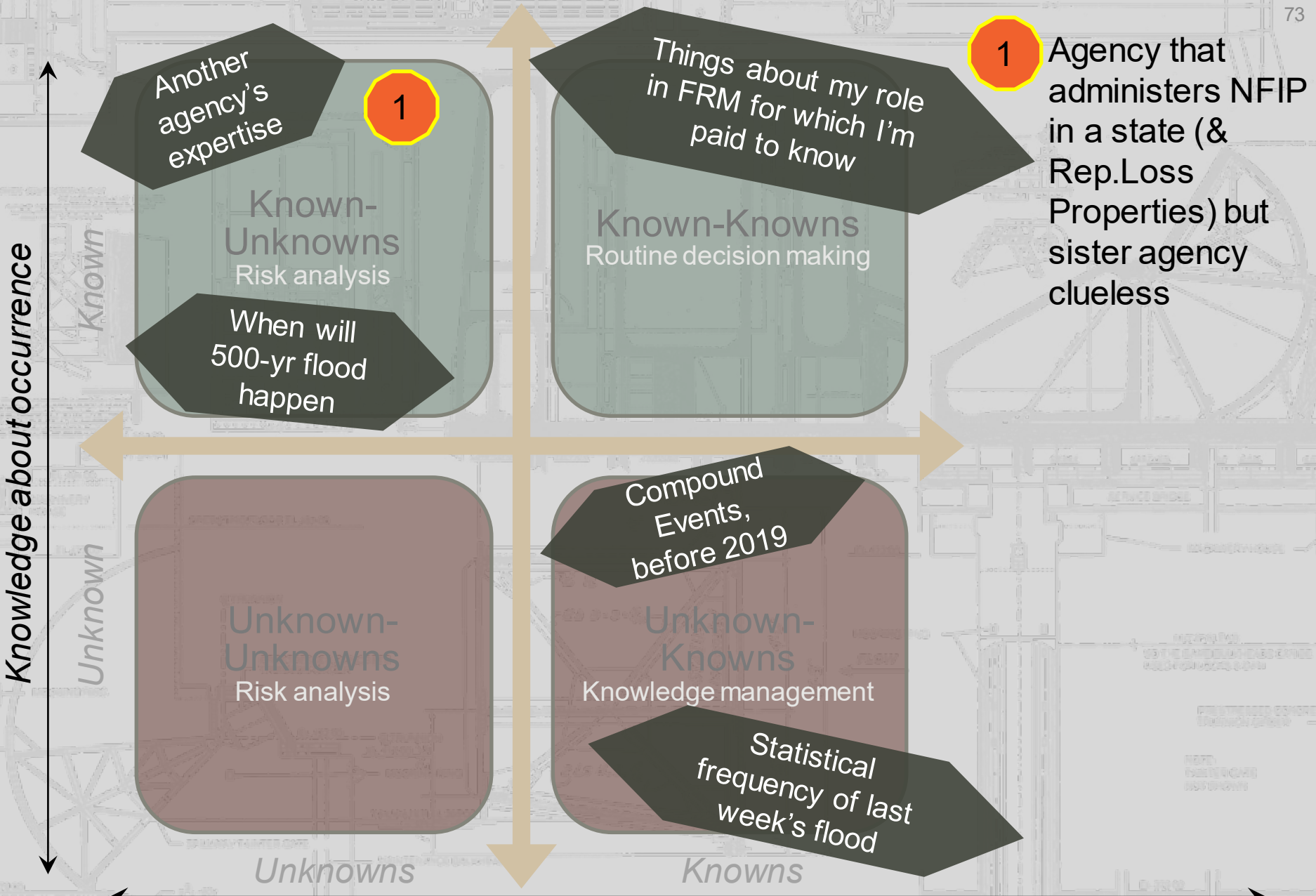
Awareness of the limits of our knowledge or Knowledge about impacts

KNOWING ABOUT WHY TO CONSULT AND INFORM



Awareness of the limits of our knowledge or Knowledge about impacts

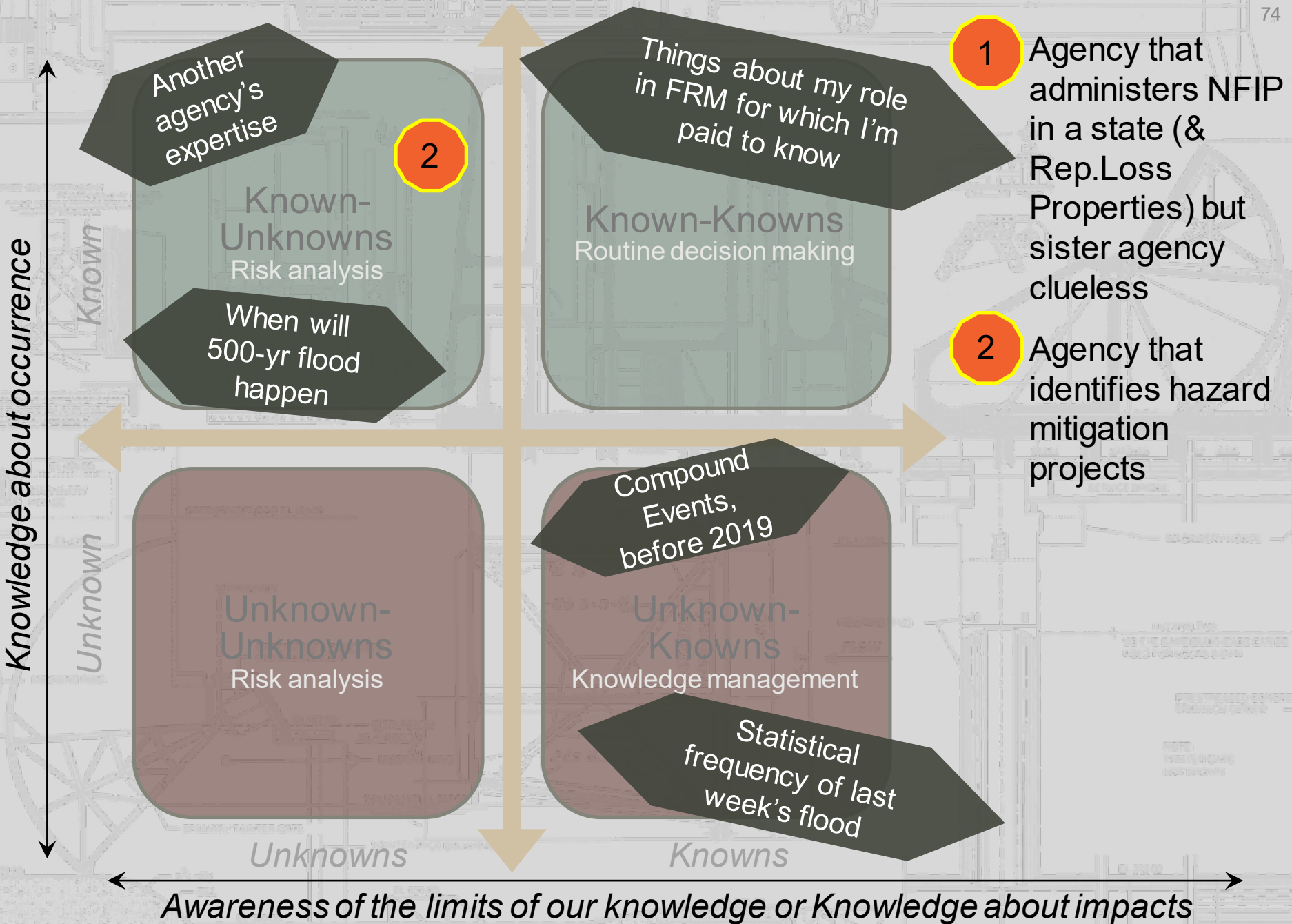
KNOWING ABOUT WHY TO CONSULT AND INFORM



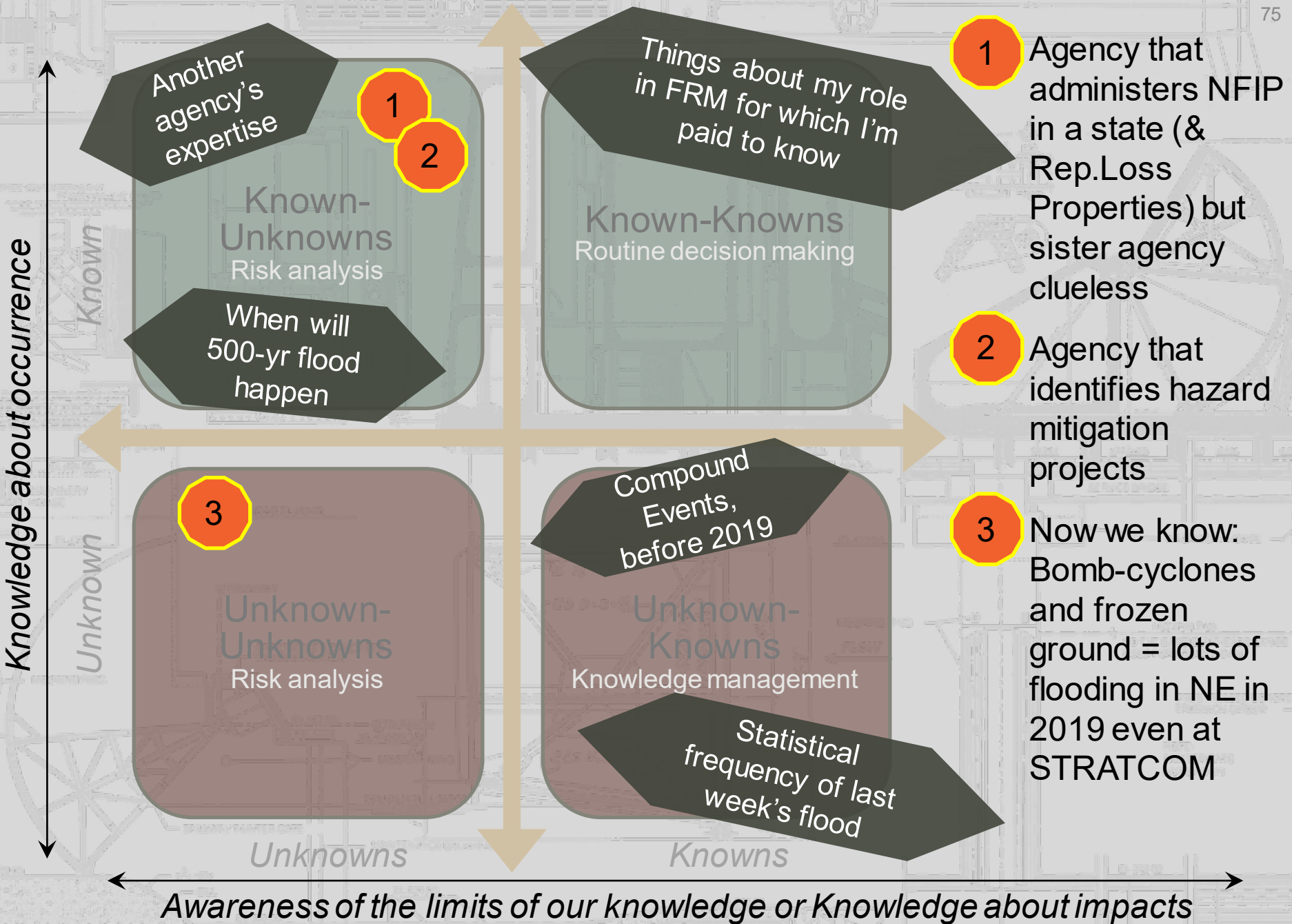
Awareness of the limits of our knowledge or Knowledge about impacts

1 Agency that administers NFIP in a state (& Rep.Loss Properties) but sister agency clueless

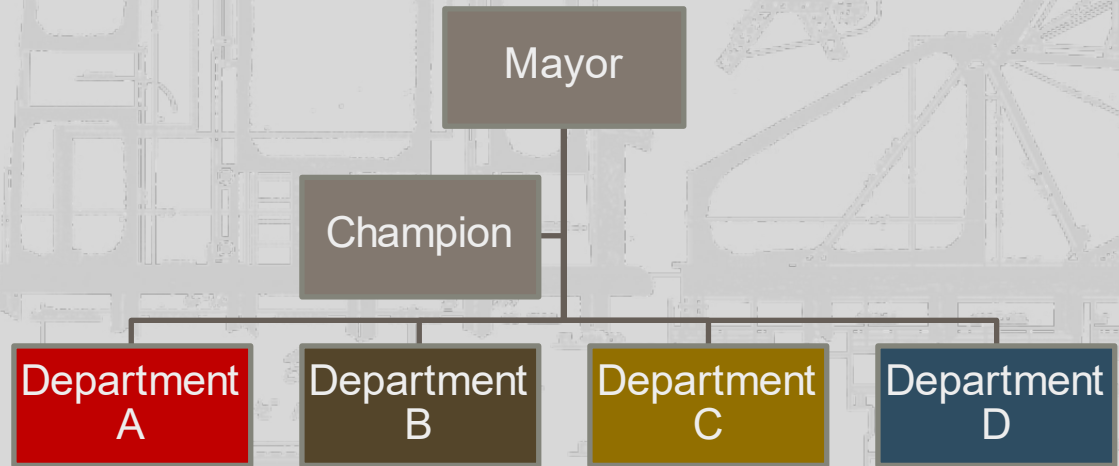
KNOWING ABOUT WHY TO CONSULT AND INFORM



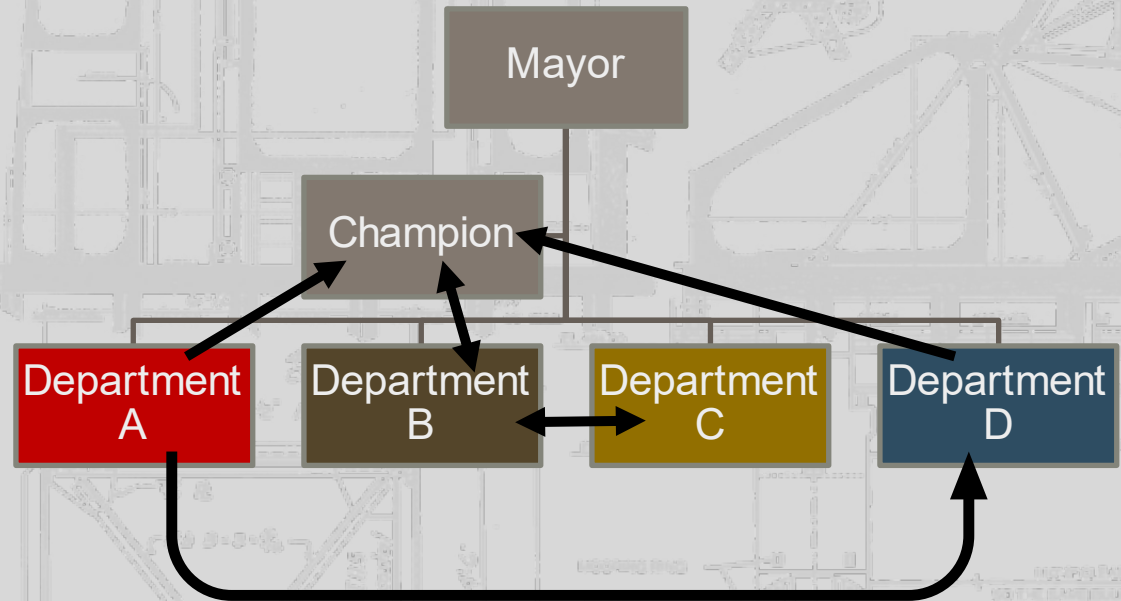
KNOWING ABOUT WHY TO CONSULT AND INFORM



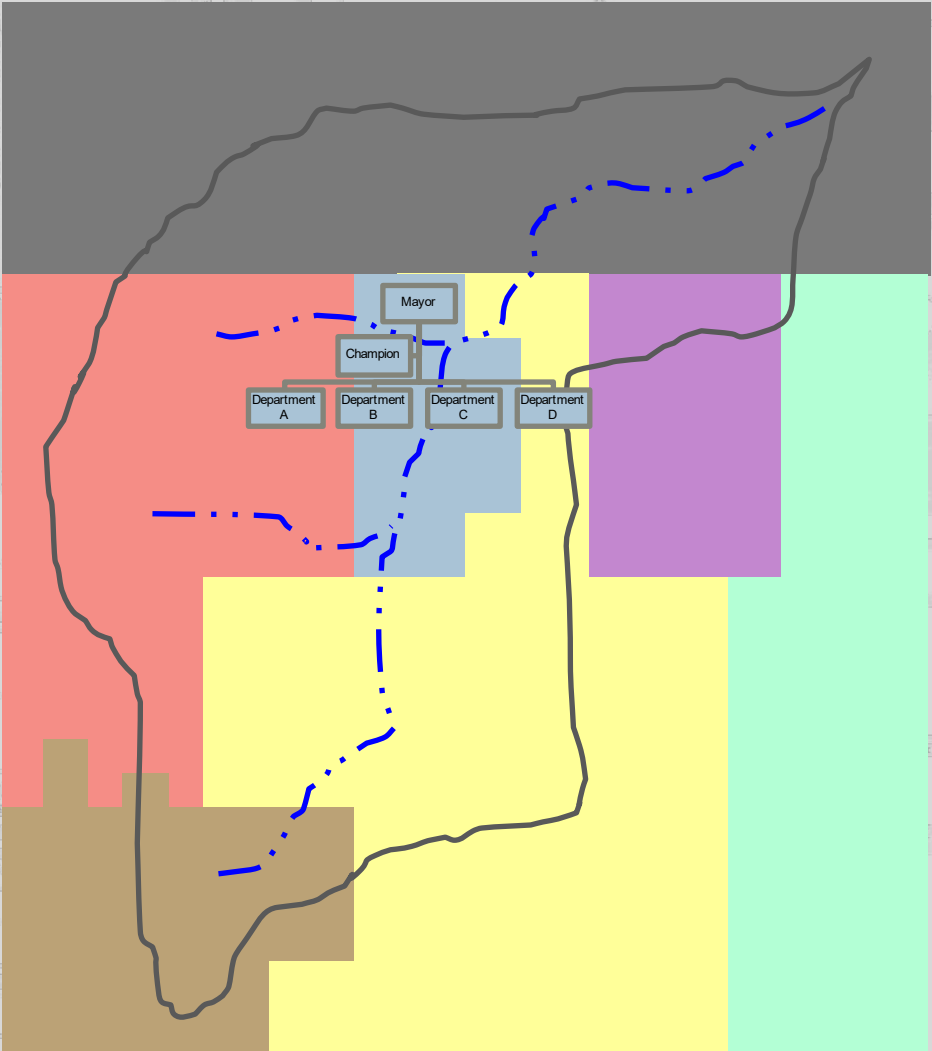
UNDERSTAND ROLES - INTERNALLY



UNDERSTAND ROLES - INTERNALLY



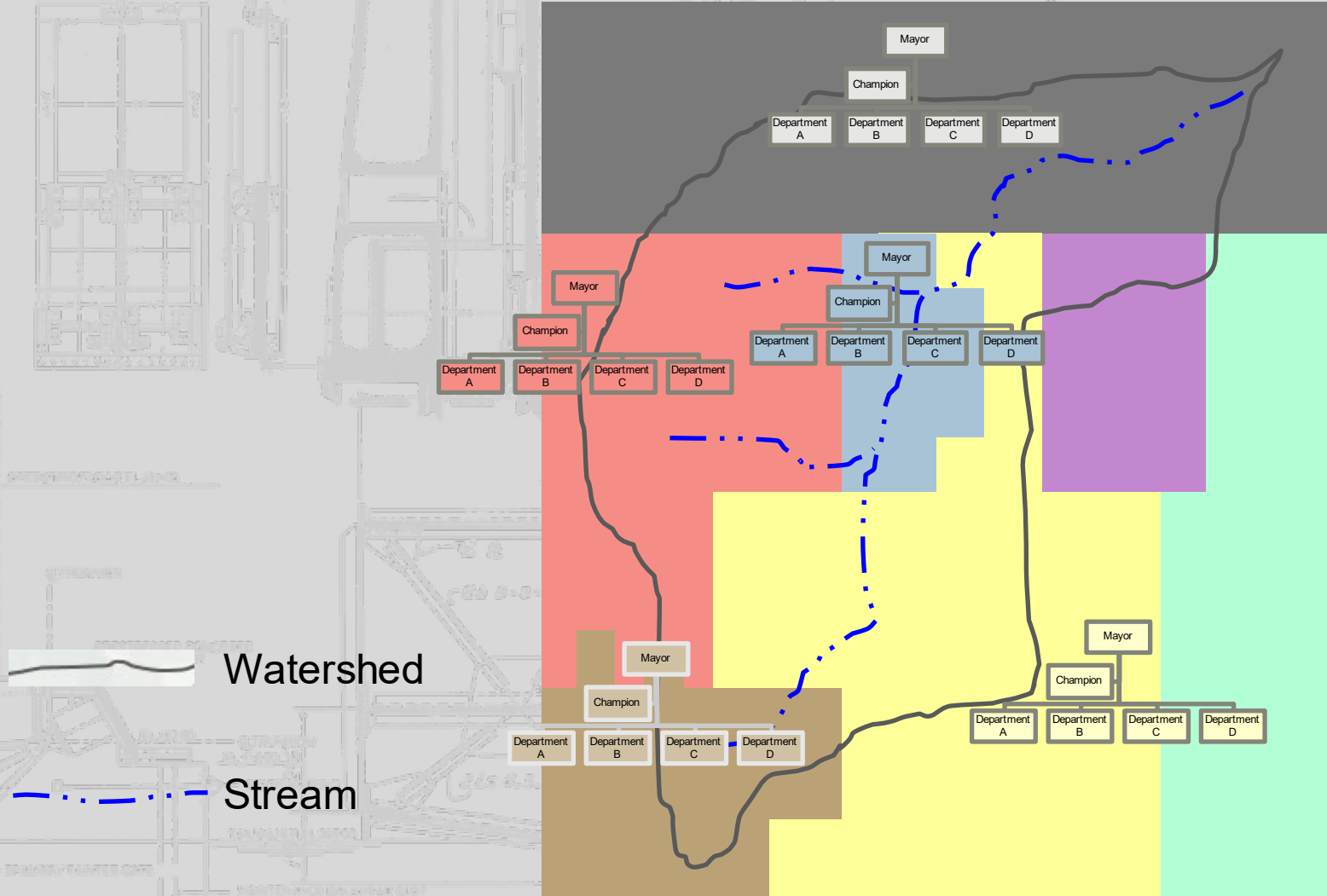
COORDINATING - EXTERNALLY



 Watershed

 Stream

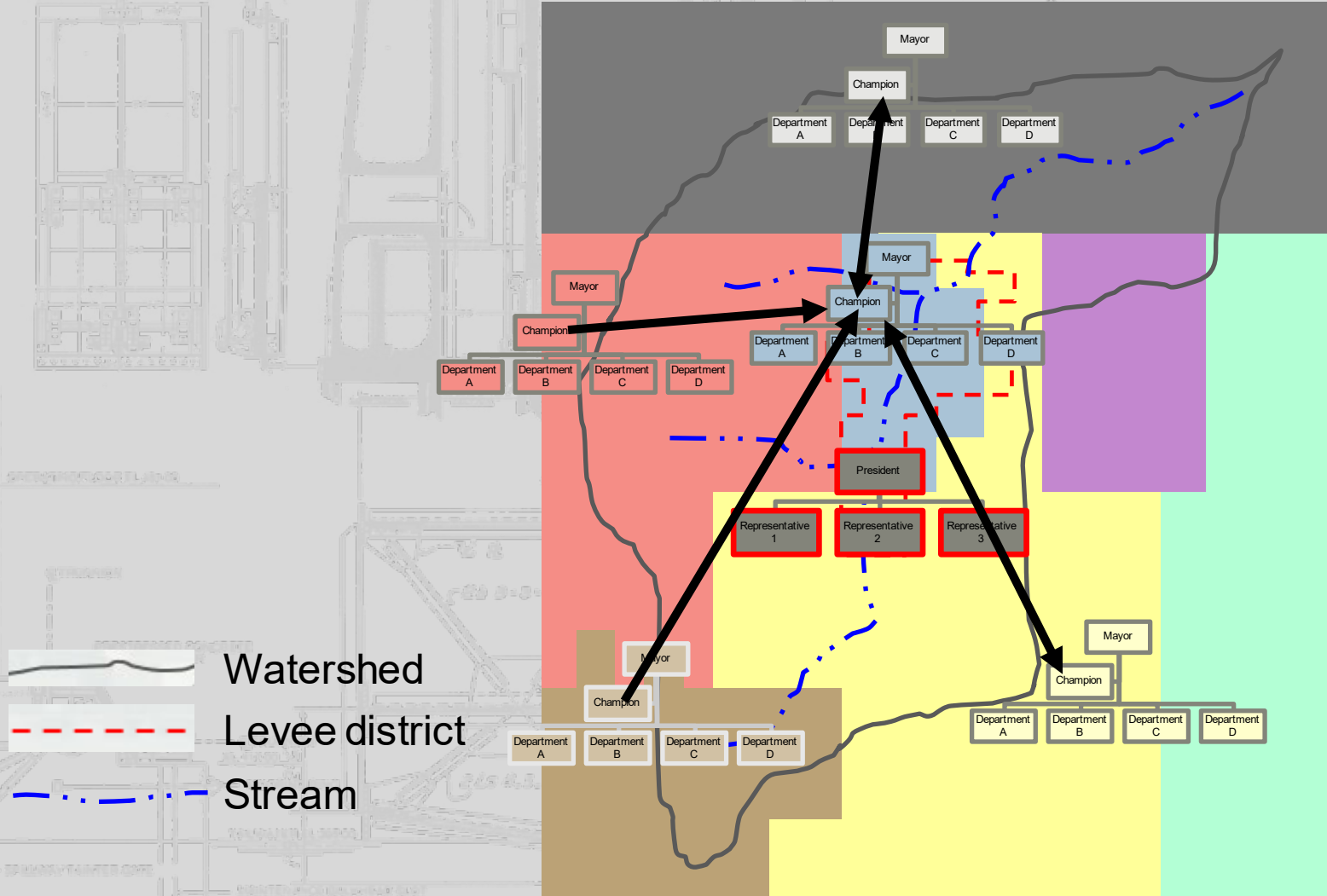
COORDINATING - EXTERNALLY



 Watershed

 Stream

COORDINATING - EXTERNALLY



THE ROLES AND RESPONSIBILITIES TABLE OR “RACI MATRIX”

Activities. This tool shows activities on the left column.

General Definitions. The heart of the matrix is the field containing letters.

R=Responsible, the one seeking to drive down the risk (only one R in the matrix)

A=Accountable, the one accountable for their entity's program (only one A in the matrix)

C=Consult, those that are subject matter experts (multiple C's can be in the matrix)

I=Inform, those interested in flood hazard mitigation (multiple I's can be in the matrix)

Columns. The entities that have a stake, or that have the ability to enhance flood risk management, are in the columns that follow to the activities right.

ROLES AND RESPONSIBILITIES COMMUNITY

Responsibility Assignment Matrix, RACI Chart (R=Responsible, A=Accountable, C=Consult, I=Inform)	Roles within the Community												
	Mayor / Local Official / Elected Official	City Council	NFIP Floodplain Administrator/Manager	Public Works and or Engineering	Planning	Zoning	Codes and or Building Inspection	Emergency Management	Emergency Response	Administrative Office	Water / Wastewater Treatment Plant	Public Affairs	
Activity	Role:	Community	Community	Community	Community	Community	Community	Community	Community	Community	Community	Community	Community
Process1													
Channel debris removal	A	I	C	R	C	I	I	C	I	I	I	I	I
Hazard mitigation grants	A	C	R	C	C	I	C	C	C	I	C	I	I
Flooding road closures	A	I	C	C	C	I	I	A	R	I	I	C	I
Flooding road closures detours	A	I	C	R	C	I	I	C	C	C	I	C	I
Flood response rescue	A	I	C	C	I	I	I	A	R	I	I	I	I
Flood map revision (NFIP)	A	C	R	C	C	I	I	C	C	C	I	C	I
Floodplain ordinance	A	C	R	C	C	C	C	C	C	C	C	I	I
Funding for staff doing CRS	A	C	R	C	C	C	C	C	C	C	C	C	C

Role Definitions

Responsible
Accountable
Consult
Inform

ROLES AND RESPONSIBILITIES EXAMPLE WITH A LEVEE DISTRICT

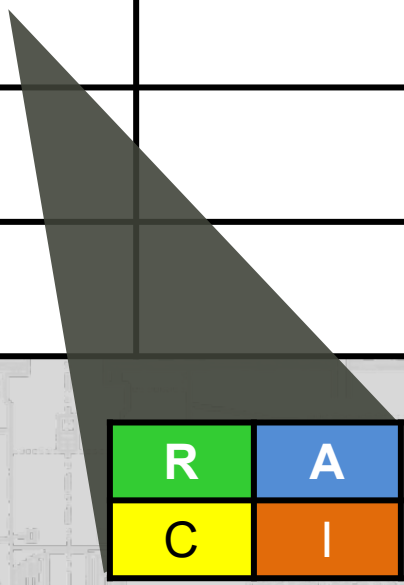
Responsibility Assignment Matrix, RACI Chart (R=Responsible, A=Accountable, C=Consult, I=Inform)		Levee Sponsor	Emergency Management, Levee Safety Program	NFIP Floodplain Administrator/Manager	Public Works and or Engineering	Planning	Zoning	Codes and or Building Inspection	Emergency Management	Emergency Response	Administrative Office	Water / Wastewater Treatment Plant
Activity	Role:	Levee District	USACE	Community	Community	Community	Community	Community	Community	Community	Community	Community
Levee O&M												
Mow grass		R	C	I	I	I	I	I	I	I	A	I
Prevent animal burrows		R	C	I	I	I	I	I	I	I	A	I
Levee Flood Recovery												
Request assistance (PL 84-99)		R	C	I	I	I	I	I	I	I	A	I
Provide real estate access		R	C	I	I	I	I	I	I	I	A	I
Levee Risk Management												
Raise awareness on flood risk		R	C	I	C	C	I	I	C	C	A	C
Develop emergency action plan		C	C	C	C	R	I	I	C	C	A	C
Document evacuation routes		C	C	C	C	C	I	I	R	C	A	C
Create a flood warning system		C	C	C	C	C	I	I	C	R	A	C
Raise the levee height		R	C	A	C	C	C	C	I	I	A	C

Role Definitions

Responsible
Accountable
Consult
Inform

THE ROLES AND RESPONSIBILITIES TABLE OR "RACI MATRIX"

	Mayor	City Flood Administrator	Levee Sponsor	Corps of Engineers
Maintain grass on levee				
Develop evacuation plan				
Issue evacuation order				



General Definitions. The heart of the matrix is the field containing letters.

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THE ROLES AND RESPONSIBILITIES TABLE OR "RACI MATRIX"

	Mayor	City Flood Administrator	Levee Sponsor	Corps of Engineers
Maintain grass on levee				
Develop evacuation plan				
Issue evacuation order				

R

A

C

I

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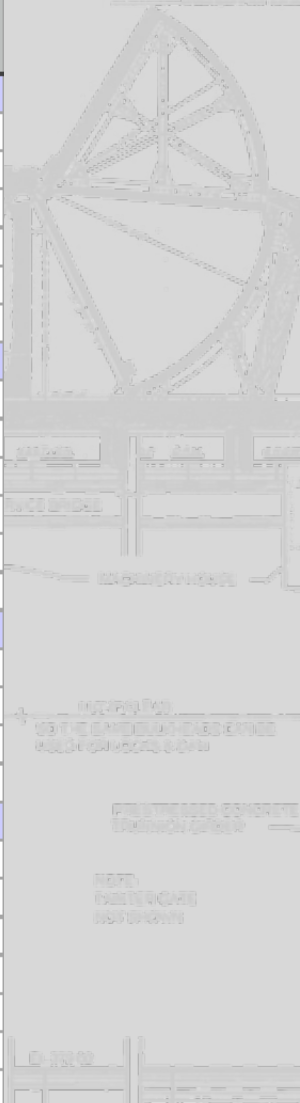
I=Inform, those interested in flood hazard mitigation (multiple I's can be in the matrix)

ROLES AND RESPONSIBILITIES

[Scenario: This is the example when community is not the levee sponsor.]

Example Activities

		Partners in Flood Risk Management	Community Floodplain Administrator	Community Emergency Management	Community elected official	Levee District staff	Levee District director	Sheriff	State	FEMA	USACE	Public, property owner in leveed area
1	PREPARATION AND TRAINING											
2	Maintain grass on the levee		C	C	I	R	A	I	I	I	I	I
3	Setup a floodplain ordinance for NFIP		R	R	A	I	I	I	C	C	I	C
4	Create an emergency action plan, identify action thresholds, establish evacuation routes		C	R	A	C	C	C	C	C	C	I
5	Get flood insurance under the NFIP		I	I	I	I	I	I	I	I	I	R, A
6	Understand risk drivers for the levee to inform emergency action plan and floodfighting		C	C	C	R	A	C	C	C	C	I
7	Create (in emergency action plan) risk communication and public messages by evacuation zones		C	R	A	R	C	C	C	C	C	I
8	RESPONSE											
9	Execute emergency action plan		C	R	I	R	C	A	C	C	C	I
10	Levee owner communicates incidents to community staff		C	C	C	R	A	C	C	C	C	I
11	Community conveys emergency messages to public		C	R	A	C	C	C	C	C	C	I
12	Give evacuation orders		C	C	C	C	C	R, A	C	C	C	I
13	Coordinate floodfighting		R	R	A	C	C	C	C	C	C	I
14	Do floodfighting, activate closure structures		C	C	C	R	A	C	I	I	C	I
15	RECOVERY											
16	Get recovery assistance per PL 84-99, pursuing federal funding		C	C	C	R	A	I	I	I	R	I
17	Work on disaster loans, assisting applicants		C	C	I	I	I	I	C	A	I	R
18	Provide rights-of-entry to USACE for PL 84-99 construction repairs		C	C	C	R	A	I	I	I	I	R
19	Repay disaster loans individual property owners (with interest)		I	I	I	I	I	I	C	C	I	R, A
20	MITIGATION											
21	Apply and pay for flood insurance		C	C	I	I	I	I	C	C	I	R, A
22	Assist in maintaining up to date phone calling tree in emergency action plan		C	R	I	R	A	C	C	C	C	I
23	Buyout flood prone structures, applying for FEMA grants		R	R	C	C	C	I	C	A	I	C
24	Fix recurring incidents at levee (nuisances, erosion, etc)		C	C	C	R	A	I	I	I	C	I
25	Develop understanding of measures, especially nonstructural measures		R	R	A	I	I	I	C	C	C	I
26	Understand opportunities to reduce and manage flood risk on your property		R	C	I	C	C	I	C	C	C	R, A
27	Elevate building structures, apply for federal funding in USACE CAP or GI Prg.		C	R	C	C	C	I	C	C	A	I



THE ROLES AND RESPONSIBILITIES TABLE OR "RACI MATRIX"

	Role1 at agency1	Role 2 at agency1	Role3 at agency2	Role4 at agency3
Activity1 description				
Activity2 description				
Activity3 description				

R

A

C

I

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UN-USED SLIDES

FOR REFERENCE



US Army Corps
of Engineers.

WE MUST LEARN HOW TO CREATE AND SUSTAIN A PLAYBOOK FOR RESILIENCE

**Effective risk
management
demands a
programmatic
plan**



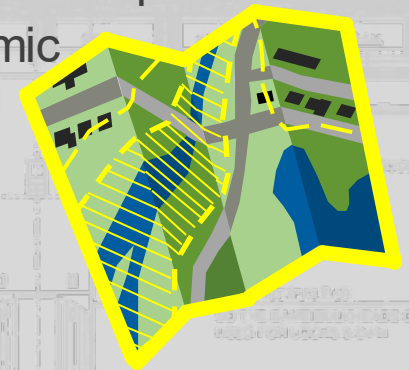
THE ROLE OF SCIENCE AND SCIENCE VERSUS ROLES

ROLES

- **Developers** serving on city councils
- Emergency managers advising a mayor whether to issue evacuation orders
- Floodplain managers pushing a flood ordinance into adoption and enforcing codes on property owners
- Governors deciding on a mask mandate for COVID

NATURAL EVENTS and SCIENCE-BASED KNOWLEDGE

- The 100-year flood (1% annual chance of exceedance), or regulatory / national flood hazard
- The 500-year flood (0.2% ACE)
- Flood inundation map extents
- Global pandemic



HOW YOU CAN GET HELP

Flood Plain Management Services or FPMS

- Has a quick response element
- Provides USACE technical services

Silver Jackets Interagency Nonstructural Call for Proposals

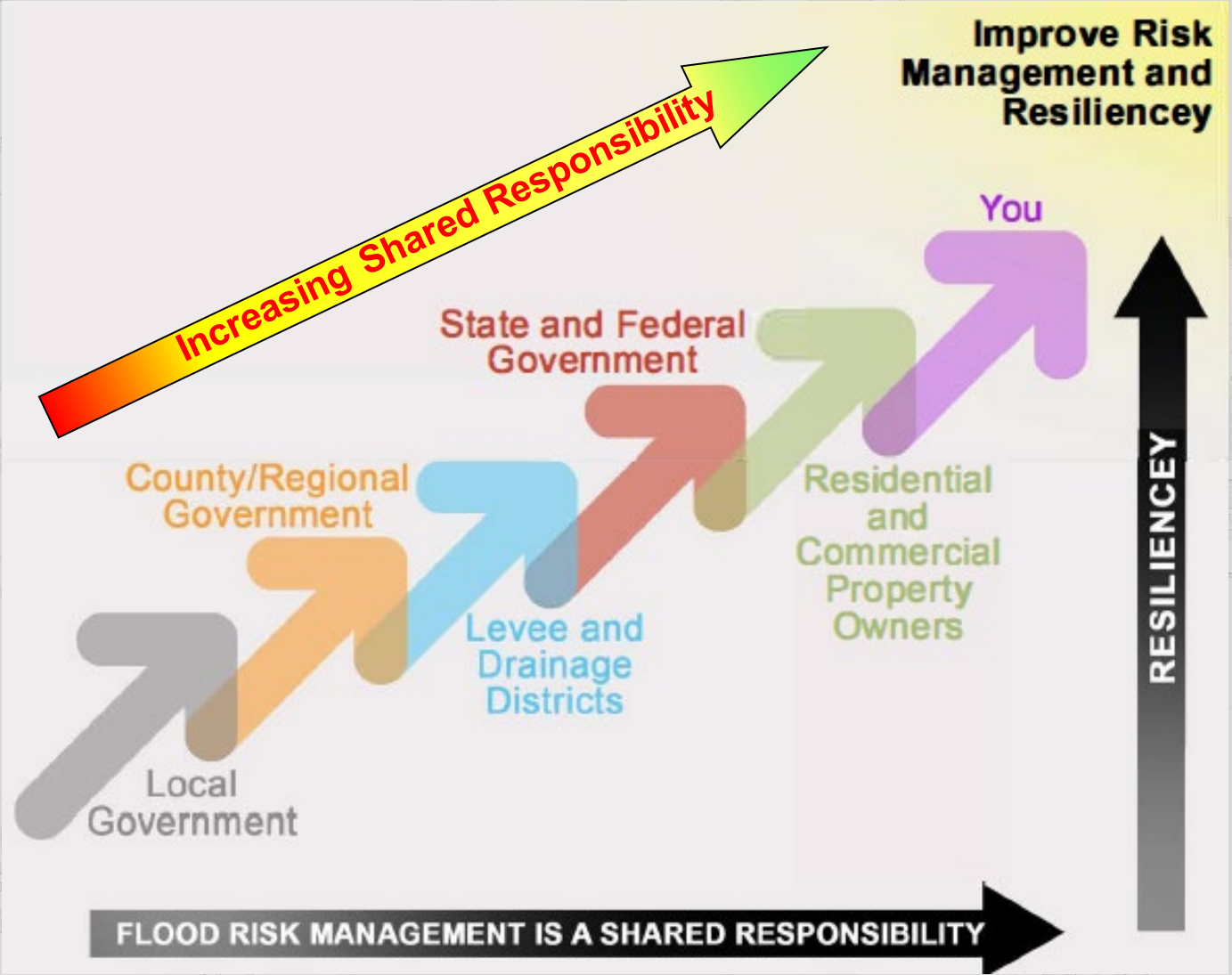
- Due by April
- Must have state acknowledgement to prioritize
- Should show interagency aspects
- Would not help with building any feature

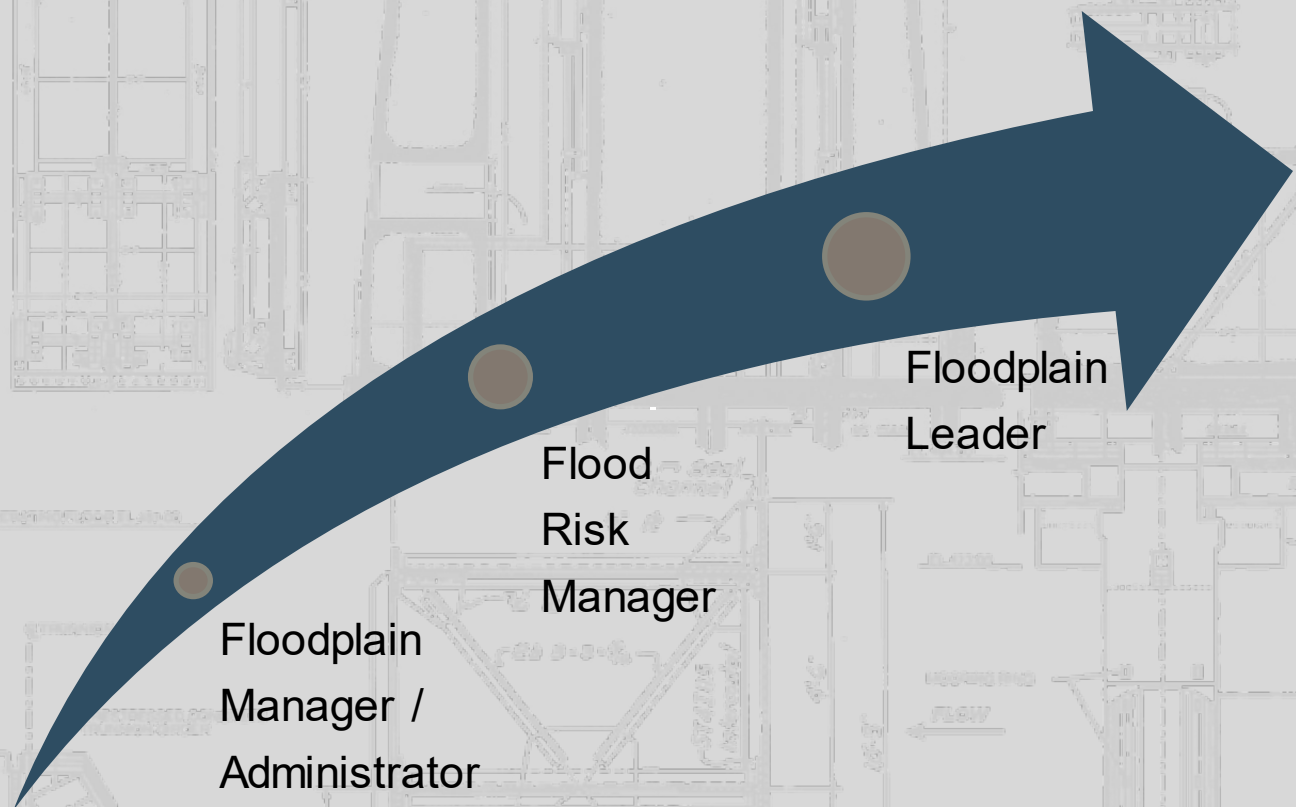
Speak with me today or contact me

brian.t.rast@usace.army.mil

816-389-3337

BETTER TOGETHER ... IN KNOCKING OUT FLOOD HAZARDS





Floodplain
Manager /
Administrator

Flood
Risk
Manager

Floodplain
Leader

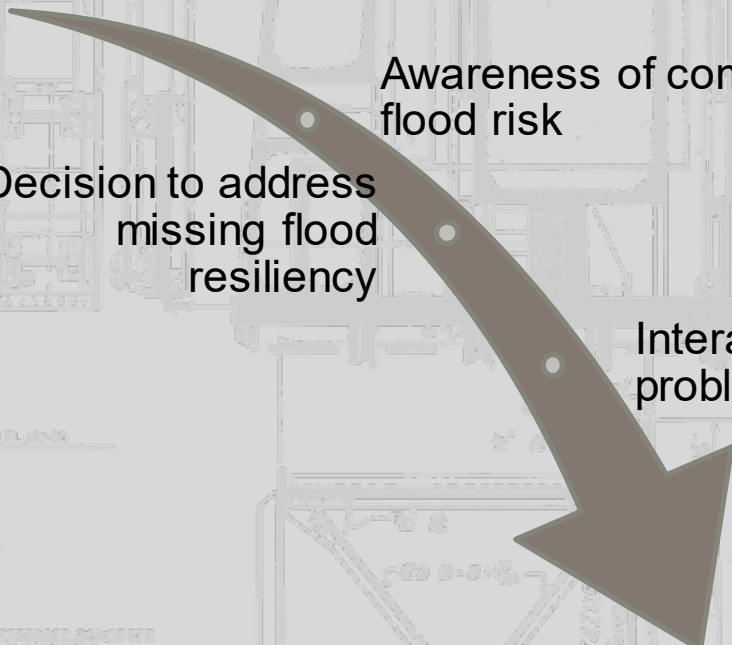
Newly
elected local
official

Awareness of community's
flood risk

Decision to address
missing flood
resiliency

Interactive
problem solving

Local Champion



PERIODIC DIALOGUE ACROSS DEPARTMENTS, ROLES, AND WITH ALL THE STAKEHOLDERS WILL RESULT IN SHARED RESPONSIBILITY AND MOVE THE ENTIRE COMMUNITY TOWARD RESILIENCY

Local Official
Floodplain Administrator

Values of ecosystems, recreation, aesthetics...	Raise awareness so local officials know risks	Common goals for hazard mitigation	End the reliance on one measure	Create momentum toward flood resilience
---	---	------------------------------------	---------------------------------	---

FLOODPLAIN MANAGEMENT PLAN

Values of growth and development	Meet with the public	Engage the public in the decisions on measures	Enhance hazard mitigation planning	...use this playbook with next elected official
----------------------------------	----------------------	--	------------------------------------	---

Like the thread in a patch-work quilt, a Floodplain Management Plan weaves it all together.



GAPS IN THE INTERAGENCY PARTNERS' ROLES

