



# Community Disaster Risk Reduction and Adaptation

# Welcome!

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# Purpose of Module

- Introduce the whole community approach to Disaster Risk Reduction (DRR)
- Show how communities can use mitigation to adapt and become more resilient

# Learning Objectives

1. Describe the trends changing the make-up of U.S. communities
2. Identify themes of the whole community approach
3. Recall mitigation types and provide hazard-specific examples
4. Recognize lessons learned from Resilient Neighbors Network (RNN) community success story

# Part I: Introduction to the Whole Community Approach

- General trends changing the make-up of U.S. communities
- The whole community approach

# Trends: *Government*

- Traditional approach:  
Heavy reliance on  
government
- Today's reality: all levels  
of government have  
capability limitations and  
gaps in access and service



# Trends: *Disasters*

- Scale and severity of disasters are growing
- Continued population shift into vulnerable areas such as hurricane-prone coastlines and forested wildlands



FEMA Photo by J.T. Blatty

# Trends: *Population*

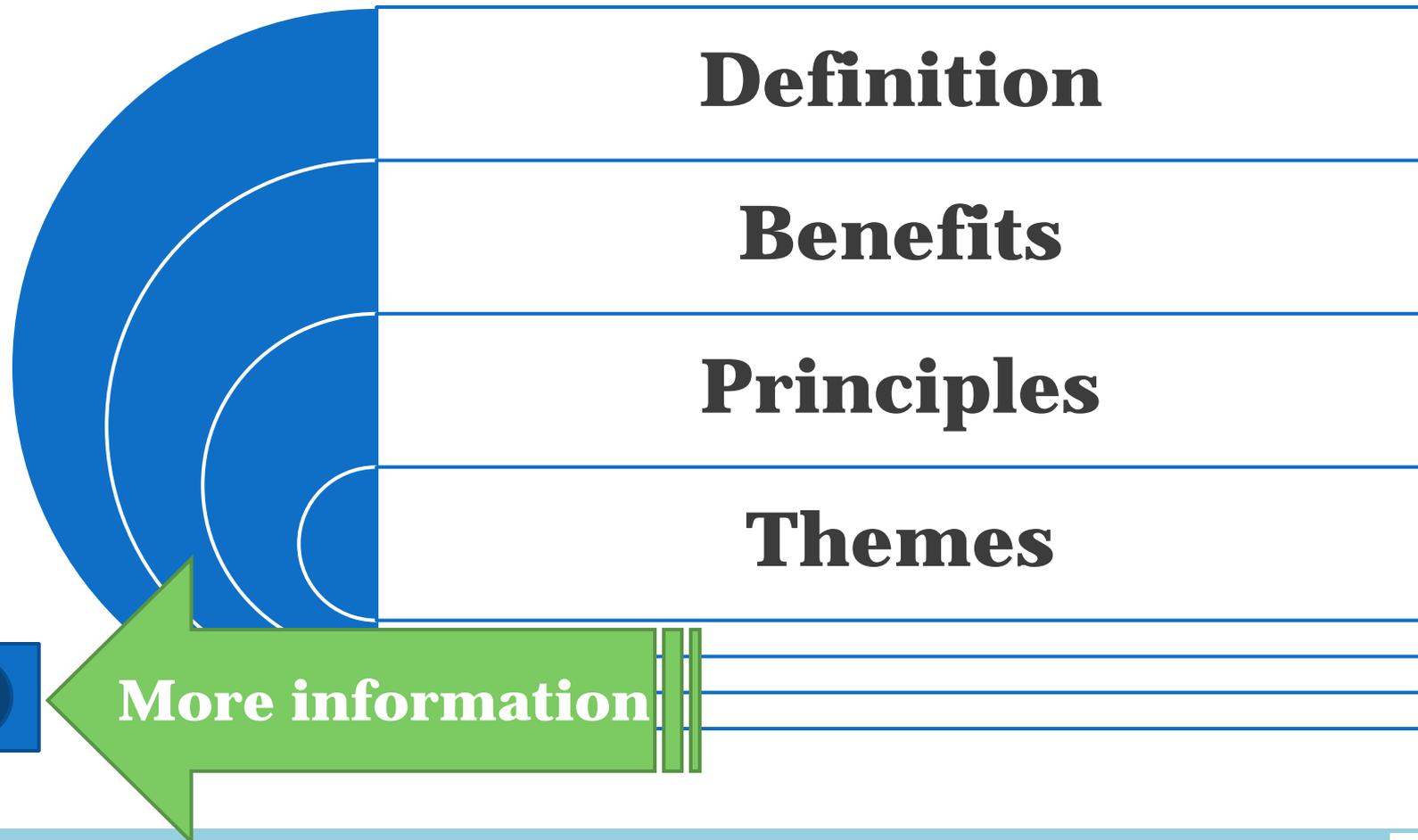


- Growing population of persons:
  - With disabilities living in communities
  - With chronic health conditions
  - Who are senior citizens
- Communities are becoming more ethnically and linguistically diverse

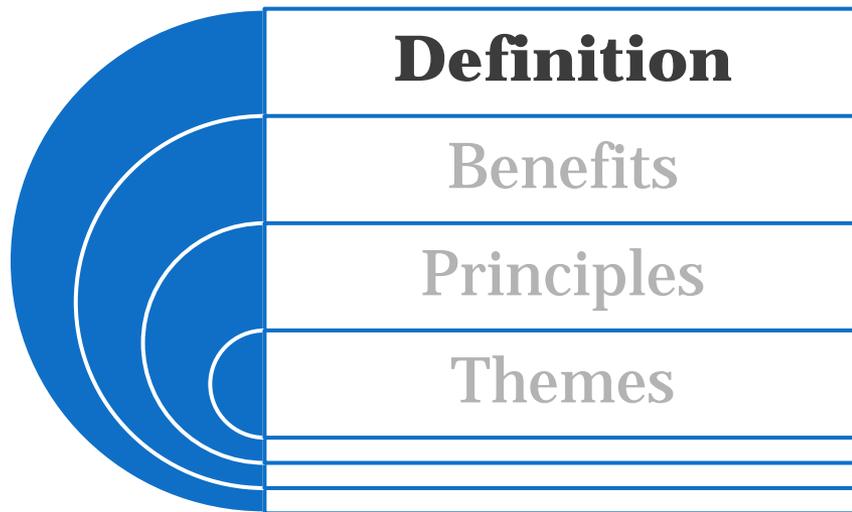
# Implications of Changing U.S. Communities

- Current trends
  - Affect the ways in which residents organize and identify with community-based associations
  - Influence how they prepare and respond to emergencies
- To enhance a community's resilience and security, engage with members of the community as vital partners

# The Whole Community Approach



# What is the Whole Community Approach?

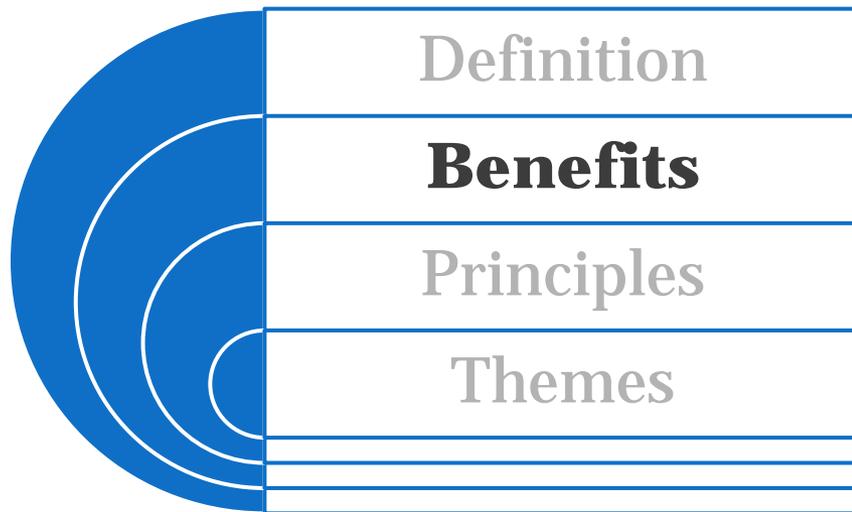


Means by which the whole community can:

- Collectively understand and access the needs of their respective communities
- Determine the best ways to organize and strengthen their assets, capacities, and interests

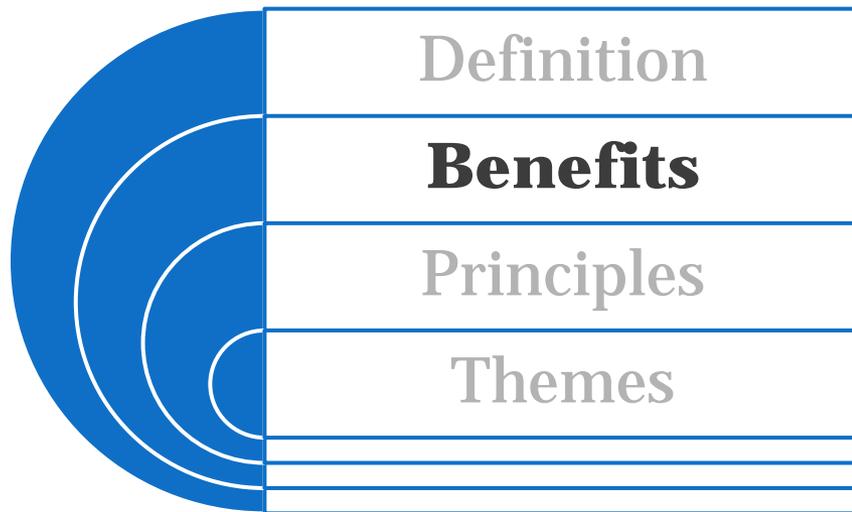
The whole community includes residents, emergency management practitioners, organizational and community leaders, and government officials

# What are the Benefits?



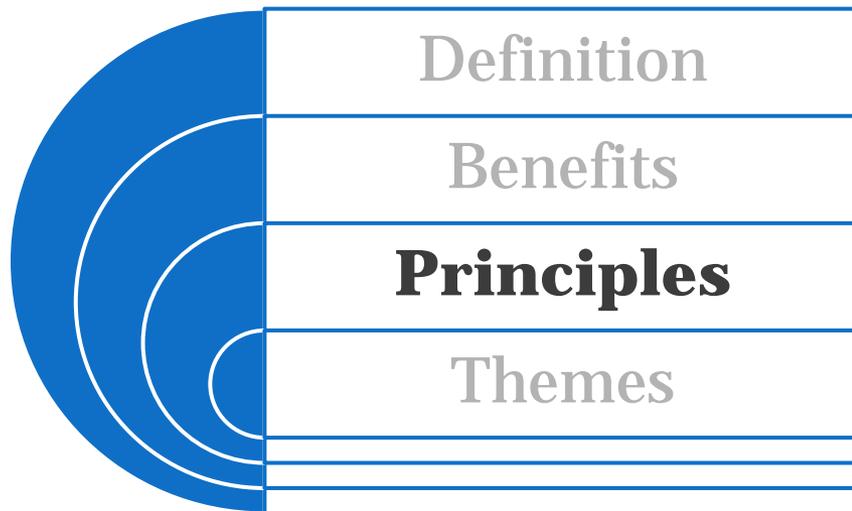
- Shared understanding of community needs and capabilities
- Greater empowerment and integration of resources from across the community
- Stronger social infrastructure

# What are the Benefits? (cont.)



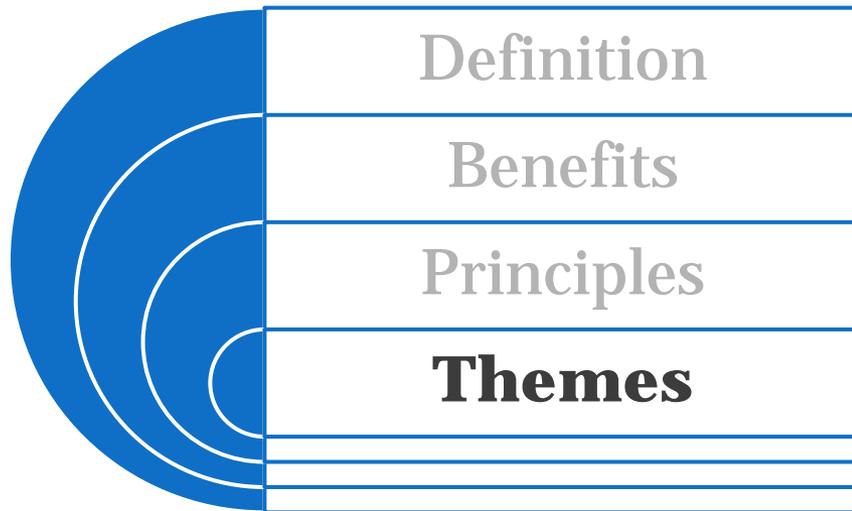
- Establishment of relationships that facilitate more effective prevention, protection, mitigation, response, and recovery activities
- Increased individual and collective preparedness
- Greater resiliency at both the community and national levels

# What are the Principles?



- Understand and meet the actual needs of the whole community
- Engage and empower all parts of the community
- Strengthen what works well in communities on a daily basis

# What are the Themes?



- Understand community complexity
- Recognize community capabilities and needs
- Foster relationships with community leaders
- Build and maintain partnerships
- Empower local action
- Leverage and strengthen social infrastructure, networks, and assets

# Theme: *Understand Community Complexity*

- Communities are unique and multi-dimensional
- They are affected by many factors, such as:
  - Geography
  - Access to resources
  - Economic prosperity
  - Social capital
  - Crime
  - Political activity



# Theme: *Recognize Community Capabilities and Needs*

- Needs should be defined on what the community actually requires
- Actively engage both civic and private capabilities



# Theme: *Foster Relationships with Community Leaders*

- Valuable knowledge comes from formal and informal leaders
- Use leaders to help identify and build on activities which the community is already involved
- Disaster-resilient communities start by functioning and solving problems well under normal conditions
- Strong communities exhibit trust



# Theme: *Build and Maintain Partnerships*

- Build relationships with multi-organizational partnerships and coalitions
- Look for overlapping and shared interest
- Businesses play a key role
- Partnerships are attractive when all partners benefit

# Theme: *Empower Local Action*

- Government cannot manage disasters alone
- Allow members of the community to lead, not follow, in:
  - Identifying priorities
  - Organizing support
  - Implementing programs
  - Evaluating outcomes

## Theme: *Empower Local Action* (*cont.*)

- Community ownership provides a powerful incentive for sustaining action and involvement
- Especially important in rural communities where there tends to be less infrastructure

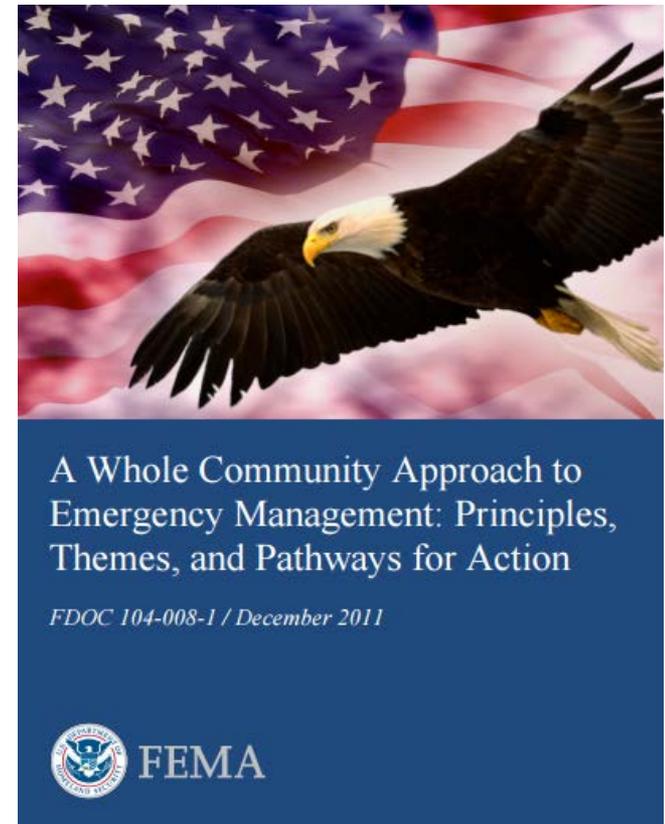


## Theme: *Leverage/ Strengthen Social Infrastructure, Networks, and Assets*

- Invest in social, economic, and political structures of daily life and connect them to emergency management
- Communities are extremely resourceful in using what is available to meet day-to-day needs in terms of funding, physical materials, and human resources
  - Strengthen these pathways to be resilient during emergencies and disasters

# Theme: *Leverage/ Strengthen Social Infrastructure, Networks, and Assets* (cont.)

- Pre-existing social groups already have systems, manpower, and equipment in place
- Local community organizations are effective because they address the core needs of a community, they are visible to the community, and they communicate regularly with local residents.



# Part II: Disaster Risk Reduction (DRR) and Community Mitigation Overview

- DRR and mitigation explained
- Mitigation examples

# Disaster Risk Reduction

- A systematic approach to identifying, assessing, and reducing the risks of disaster
- Aims to reduce vulnerabilities to disaster, utilizing knowledge and experience developed by the natural hazard community of professionals and practitioners
- DRR initiatives are in every sector of emergency management, planning and development, and humanitarian work

# Mitigation

- Effort to reduce loss of life and property by lessening the impact of disasters



FEMA Photo by Rosanna Arias

<http://www.fema.gov/media-library/assets/images/69299>

# Mitigation is NOT Preparedness

- Preparedness
  - Any action taken to improve emergency response or operational readiness
  - Installing disaster warning systems or conducting emergency response training



FEMA Photo by Benjamin Crossley

# Popular Types of Mitigation

Local  
Planning and  
Regulations

Structure and  
Infrastructure

Natural  
Systems  
Protection

Education and  
Awareness  
Programs



# Local Planning and Regulations

**Severe Wind** - Review building codes to ensure they are adequate to protect older structures from wind damage



FEMA Photo by Mike Moore

**Flood** - Enforce acceptable land uses to alleviate damage in flood hazard areas



FEMA Photo by Marilee Caliendo

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# Local Planning and Regulations (cont.)

**Drought** - Develop agreements for secondary water sources that may be used during drought conditions



FEMA Photo by George Armstrong

**Wildfire** - Use zoning or special wildfire overlay district to designate high-risk areas and specify conditions for use and development



Photo by FEMA News Photo

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# Structure and Infrastructure

## **Severe Wind** - Install Safe Rooms



FEMA Photo by Christopher Mardorf

## **Flood** - Remove existing structures from Flood Hazard Areas



FEMA Photo by Jacqueline Chandler

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# Structure and Infrastructure (cont.)

**Drought** - Retrofit water supply delivery systems



FEMA Photo by Liz Roll

**Wildfire** - Retrofit at-risk structures with ignition-resistant materials



*Mitigation Best Practice - Defensible Space and Fire Resistant Building Materials Saves Property*

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<https://www.fema.gov/media-library/assets/documents/111784>

# Natural Systems Protection

**Flood** - Preserve floodplains as Open Space



FEMA Photo by Anita Westervelt

<https://www.fema.gov/media-library/assets/images/41557>

# Natural Systems Protection (cont.)

**Drought** - Encourage drought-tolerant landscape design



EPA Photo by Linda Andrews

**Wildfire** - Implement a fuel management program to reduce hazardous vegetative fuels on public lands, near essential infrastructure



FEMA Photo by Andrea Booher

[https://www3.epa.gov/watersense/docs/water-efficient\\_landscaping\\_508.pdf](https://www3.epa.gov/watersense/docs/water-efficient_landscaping_508.pdf)

<https://www.fema.gov/media-library/assets/images/41209>

# Education and Awareness Programs

**Severe Wind** - Educate homeowners on the benefits of wind retrofits such as hurricane shutters and clips



FEMA Photo by Kenneth Wilsey

**Flood** - Educate property owners about securing debris, propane tanks, or yard items that may pose a hazard



FEMA Photo by Don Jacks

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<https://www.fema.gov/media-library/assets/images/72208>

# Education and Awareness Programs (cont.)

**Drought** - Educate farmers on soil and water conservation practices



FEMA Photo by J.T. Blatty

**Wildfire** - Have your community join the “Firewise Communities” program to learn and implement strategies to protect homes and infrastructure



# Part III: Resilient Neighbors Network Community Success Stories and Challenges

- Jefferson County, WV
- Charlotte-Mecklenburg, NC

# Jefferson County, WV

- Wanted to improve their Community Rating System (CRS) of the National Flood Insurance Program (NFIP) Rating so that more people would be able to afford flood insurance

# Community DRR in Action

## 2006 - Admitted into CRS as Class 9 community

- Assembled CRS Committee with various County Departments - each discussed current activities and set goals for improving “pieces” of CRS

## 2012 - CRS rating improved to Class 8 community

- Began planning for 2016 with focus on specific activities to reach goal of further improving rating



# Stormwater Management Plan



- Engineering Dept. worked with WV Homeland Security and Emergency Management's Mitigation Division to develop "model" plan
- Built in elements to enhance stormwater management AND to maximize points for responsible management of stormwater
- Built in solutions to address area regulations imposed to improve the Chesapeake Bay Watershed

# Three Feet of Freeboard

- Updated floodplain ordinance to maximize the safety of our residents and for maximum available CRS points
- Governing body upgraded floodplain ordinance thus implementing better development through requiring higher design standards



# Program for Public Information (PPI)

- Through participation in the Resilient Neighbors Network (RNN), Emergency Manager (EM) realized opportunity to improve at educating and informing public about mitigation techniques and floodplain survival
- Engaged and received mentoring from two RNN communities on PPI
- Formed PPI committee, set project goals, adopted list of 10 messages to disseminate to community and individuals
- Jefferson County PPI was born

# Risk Assessment and Mitigation Plan

- Risk Assessment and Mitigation Planning Committee works to update plan, develop new goals/projects (including CRS crosswalk), and meets annually to assess progress
- Committee members: government officials, private businesses, developers, utility reps., reps. from County's five municipalities, Red Cross, emergency responders, public health, environmental groups, media reps., etc.



# Jefferson County, WV Today

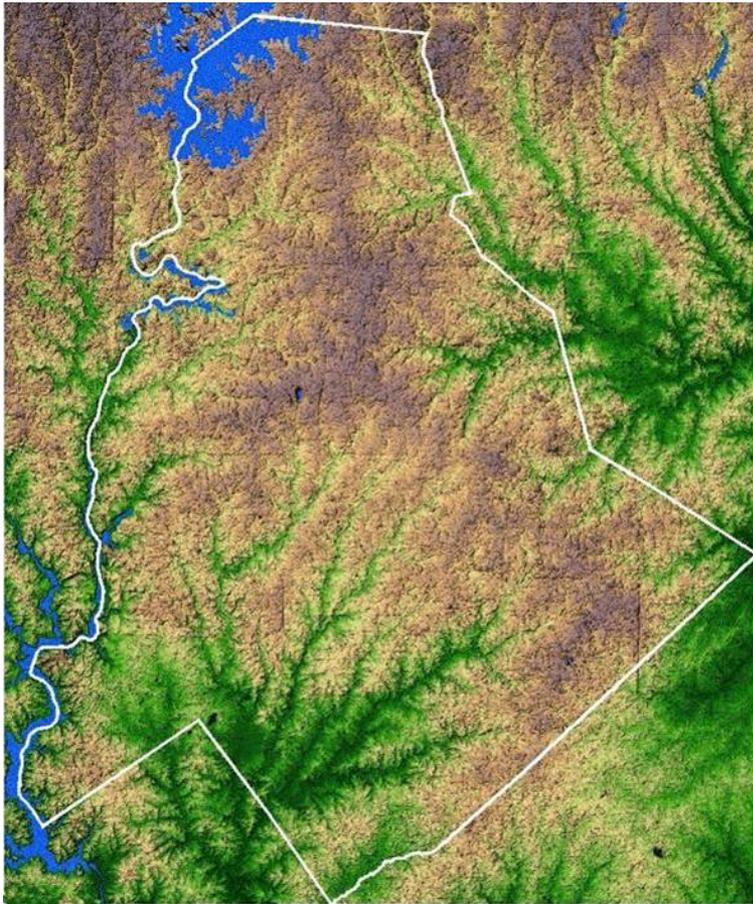
- **2016 - CRS rating improved to Class 6 community**
- Will be monitoring over the next few years to see if this will actually entice people in higher risk areas to purchase flood insurance policies



# Recommendations/ Lessons Learned

- 1. Set goals and objectives**
- 2. Include everyone who can or who is willing to help out**
- 3. Identify subject matter experts and engage them**

# Charlotte-Mecklenburg, NC



- Mission: to protect life and property, and restore the natural and beneficial floodplain functions
- Wake-up call: 1995 and 1997 floods
- Vision: healthy and vibrant community

# History & Issues



- Flooding
- Water quality
- Greenways
- Growing city

# Flood Mitigation Program



FEMA  
Mitigation  
Grants  
(Buyouts,  
Elevation)

1999



QuickBuy  
Program  
(post-  
flood)

2003,  
2008, 2011



Local  
Risk-  
Based  
Buyouts

2012



Flood-  
proofing  
buildings



2015

# DRR In Action



## Protect Life & Property (since 1999)

- Removed from floodplain nearly 400 buildings/homes and 700 families
- 185 acres of floodplain restored
- Actual damage avoided - 100s of buildings, \$25M in losses, over \$300M in benefits



## Enhance Quality of Life (since 1996)

- Creek use policy
- CIP projects - over 20 miles, 550 families
- Development ordinances - buffers
- Stream walks - 280 miles per year

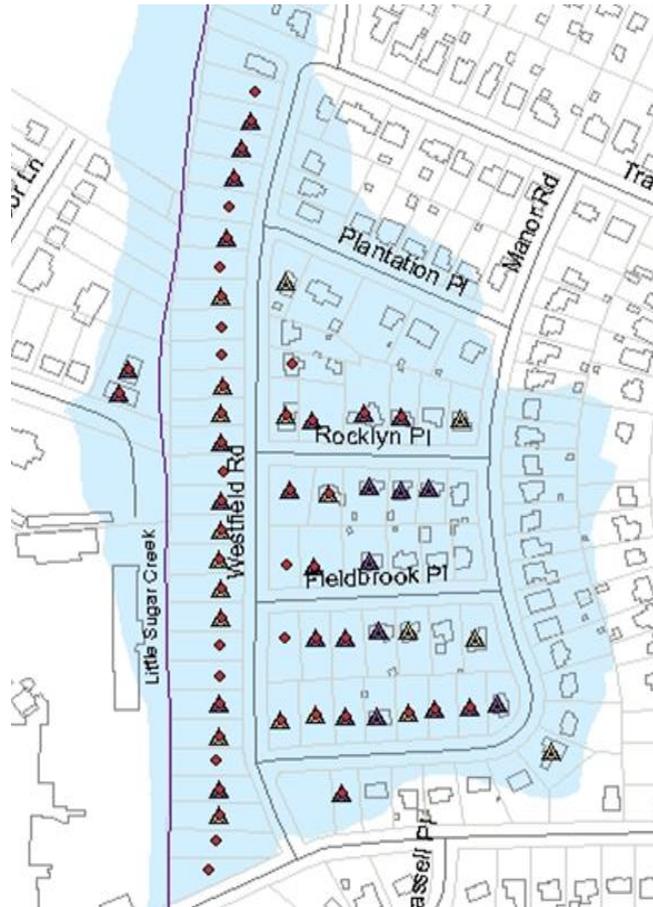
# Flood Mitigation Program



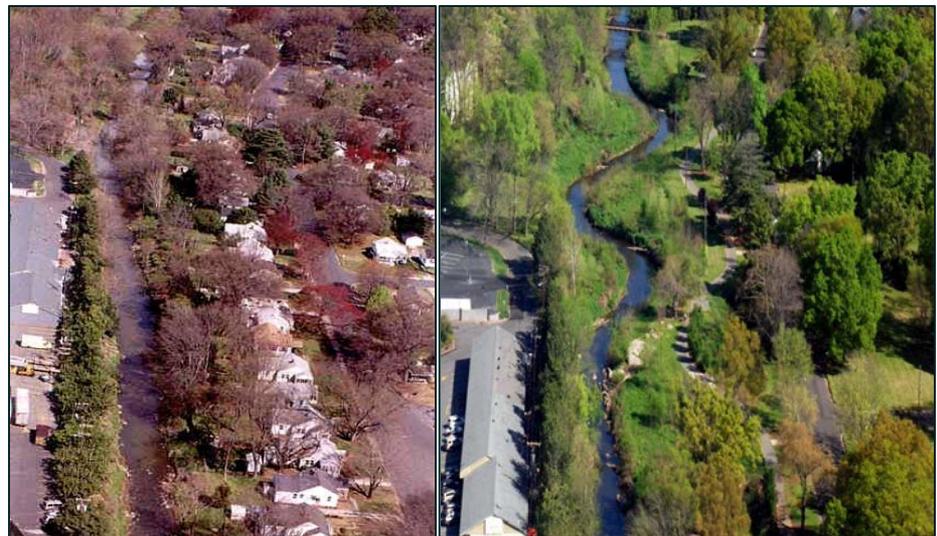
# Little Sugar Creek - "Westfield"



# Residential Area



# Westfield Project



# Little Sugar Creek Floodplain

Westfield Road

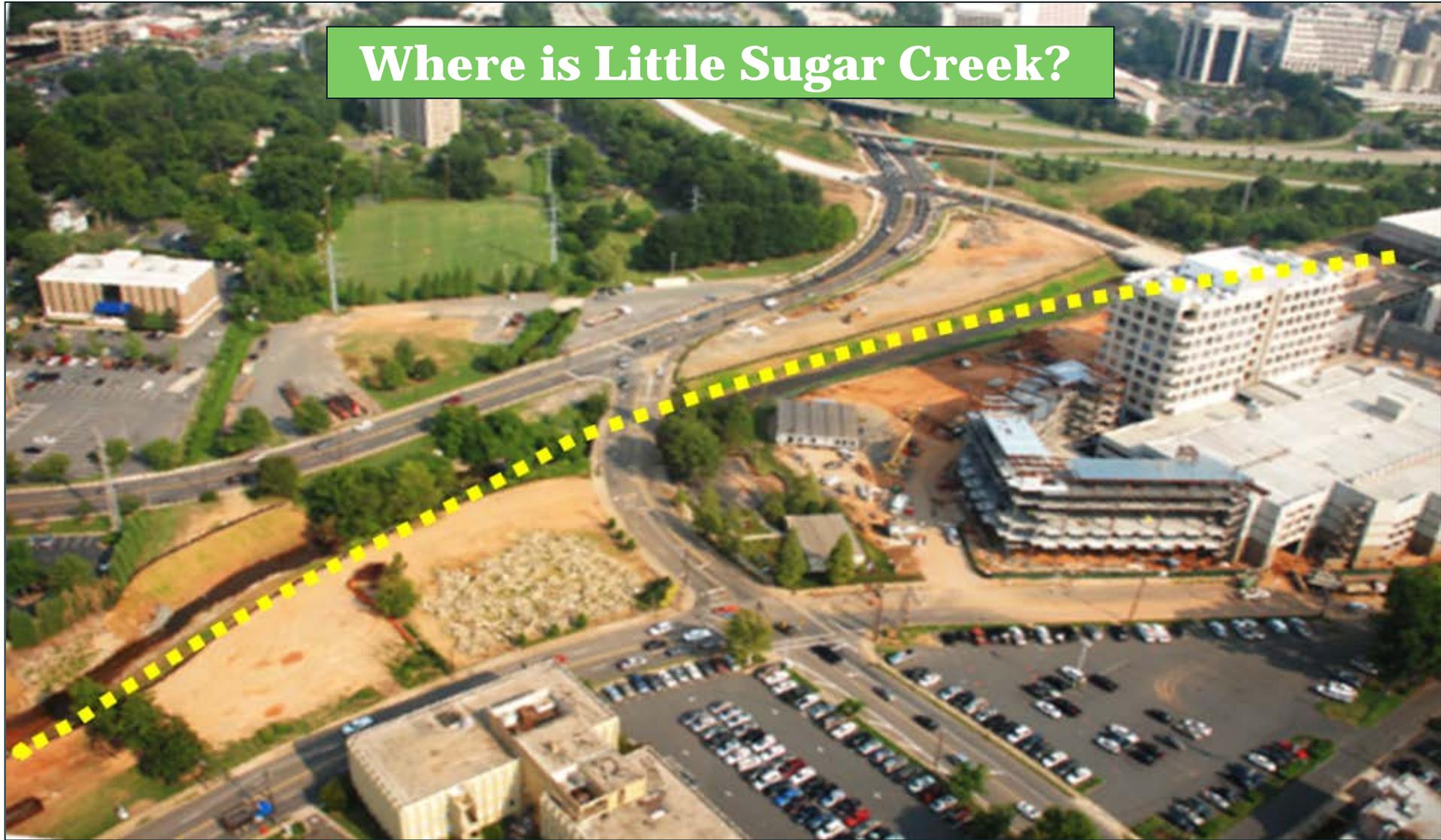


**BEFORE**



**AFTER**

# Where is Little Sugar Creek?



# Urban Redevelopment



# Little Sugar Creek - "Hidden Valley"

## Residential Low Income

- Hidden Valley neighborhood plagued by flooding problems for decades
- Little Sugar Creek placed on 303d list for impaired water quality in 2000
- County used FEMA funds to purchase and demolish 12 flood-prone houses



# Hidden Valley Project



- Restoration Drainage Area
  - Collecting 1.5 square miles, 30% impervious
- Funding
  - Storm Water Services
  - Clean Water Management Trust Fund
- Design Highlights
  - 1,500 ft. stream restoration, 3 wet ponds, 6 wetland cells, 9 pocket wetland cells

# Hidden Valley Project (cont.)

- ✓ Improve water quality
- ✓ Improve aquatic and terrestrial habitat
- ✓ Provide educational opportunity

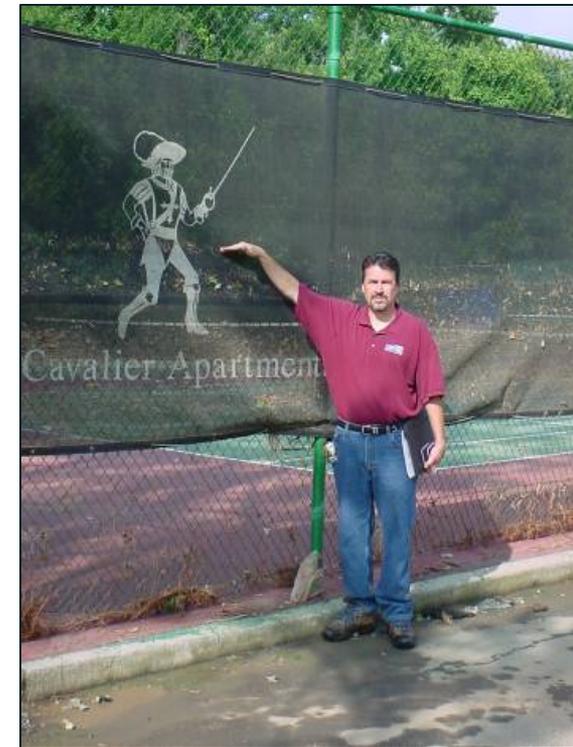


# Apartments



# Apartments: Immediate Results

- Two months after the acquisition, Charlotte was drenched by remnants of Tropical Storm Fay
- CMSWS was in the process of relocating all tenants when four feet of floodwater filled the Cavalier Apartments
- If Cavalier had been under private ownership at time of flood, a \$3.25 million dollar flood insurance claim would have been filed



# Recommendations/ Lessons Learned

- 1. Have a community vision**
- 2. Resilient Funding = Resilient Community**
- 3. Show benefits and demonstrate results**

# Review of Key Learning Objectives

1. Describe the trends changing the make-up of U.S. communities
2. Identify themes of the whole community approach
3. Recall mitigation types and provide hazard-specific examples
4. Recognize lessons learned from Resilient Neighbors Network (RNN) community success story

# Thank You for Your Participation!



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- **Questions and/or comments**
- **Contact information**

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