



# Stormwater & Green Infrastructure Finance

Innovative Uses of  
Stormwater Revenues

December 10, 2019

# Innovative Approaches

## Overview:

- retroFIT Grant Program
  - Overview
  - Lessons Learned
- Risk Assessment/Risk Reduction Tool
  - DHS Partnership
  - Need your input



# Floodplain Management

## **Floodplains are meant to flood**



- Flood Mitigation Value to Community:
- Reduce Loss of Life and Property
  - Community Resilience
  - Public Health & Safety



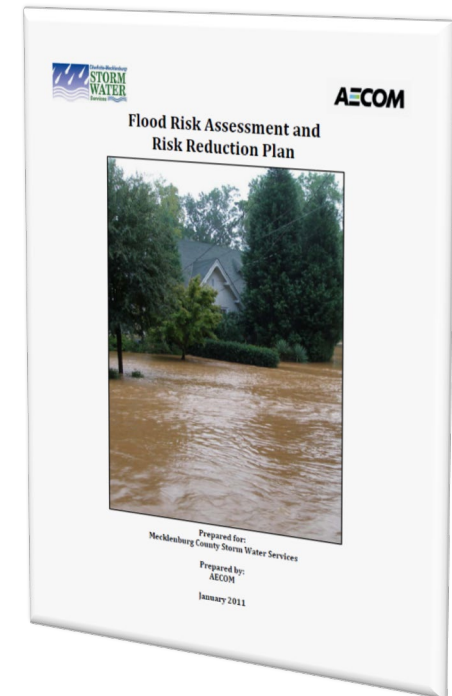
# Flood Mitigation CIP

## Existing Success

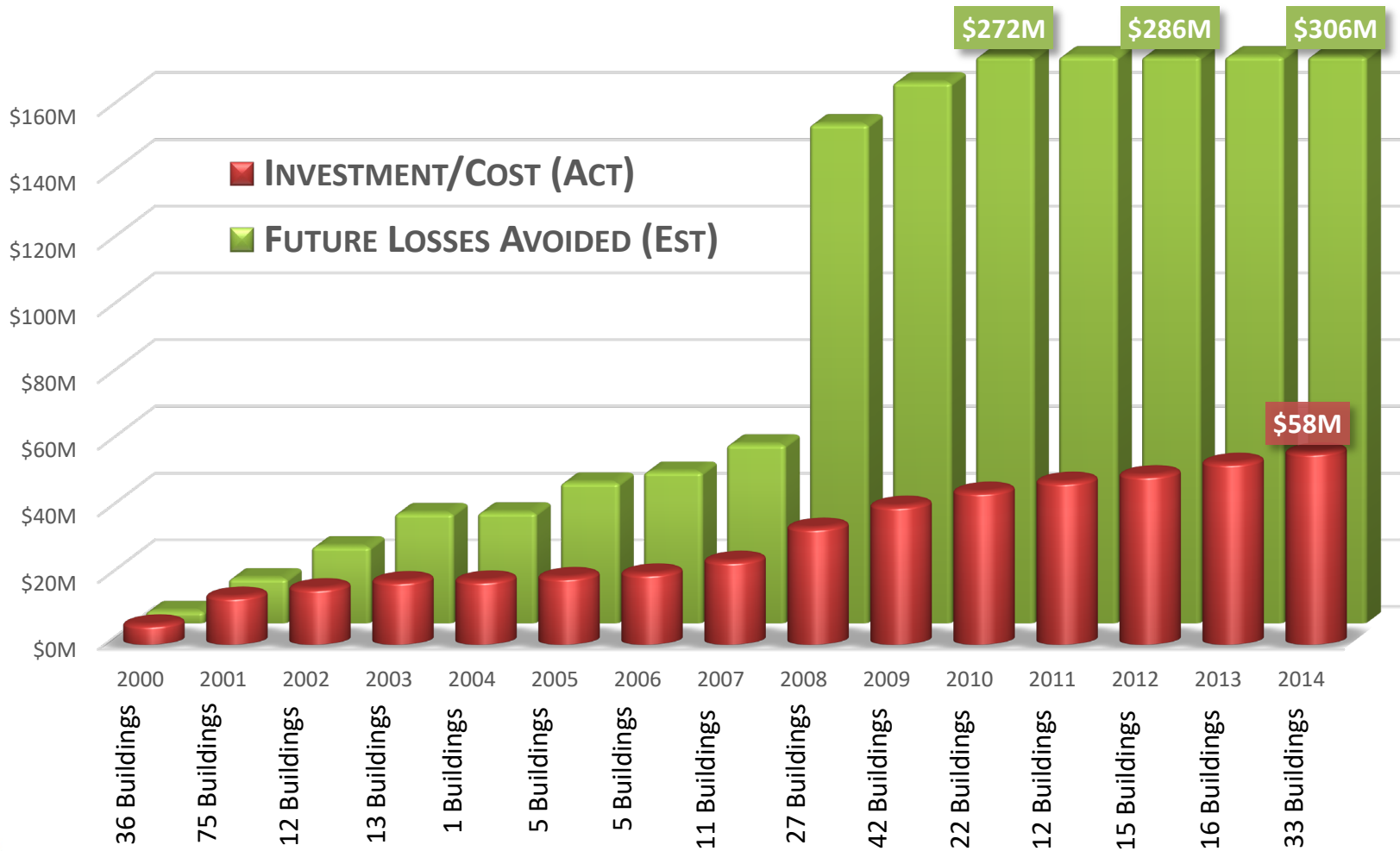
- \$58M in floodplain buyouts
- 370 properties mitigated
- FEMA Grants 75%/25%
- Shift to risk based planning (2012)



FEMA



# Flood Mitigation Results



# Program Enhancement

## Service Gap

- Non-buyout properties



## State Legislation

- NCGA §153A-274.1
- Broaden use of Stormwater Fees
- Improvements to private property
- Board must approve policy document



# Statutory Framework

## **NCGA §153A-274.1**

### **Policy Document:**

- Owner's written consent
- System improvements not feasible
- Provides savings to Storm Water
- Improvements are minimum necessary
- Improvements reimbursed to the County
- Financial contribution from owner



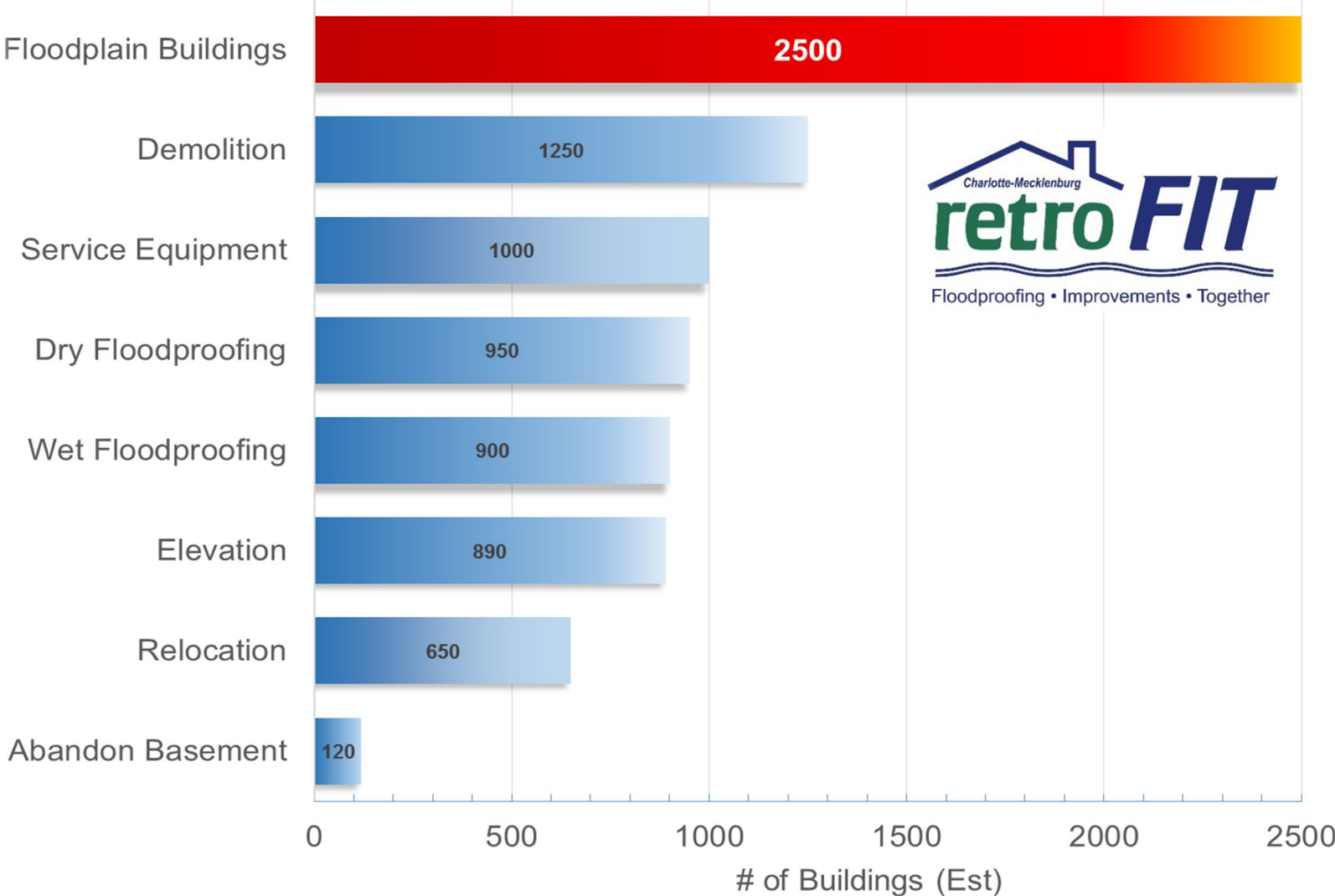
# RetroFIT Program

- Floodplain property owners
- Financial & technical assistance
- Direct grant program
- FY16 - Pilot Year

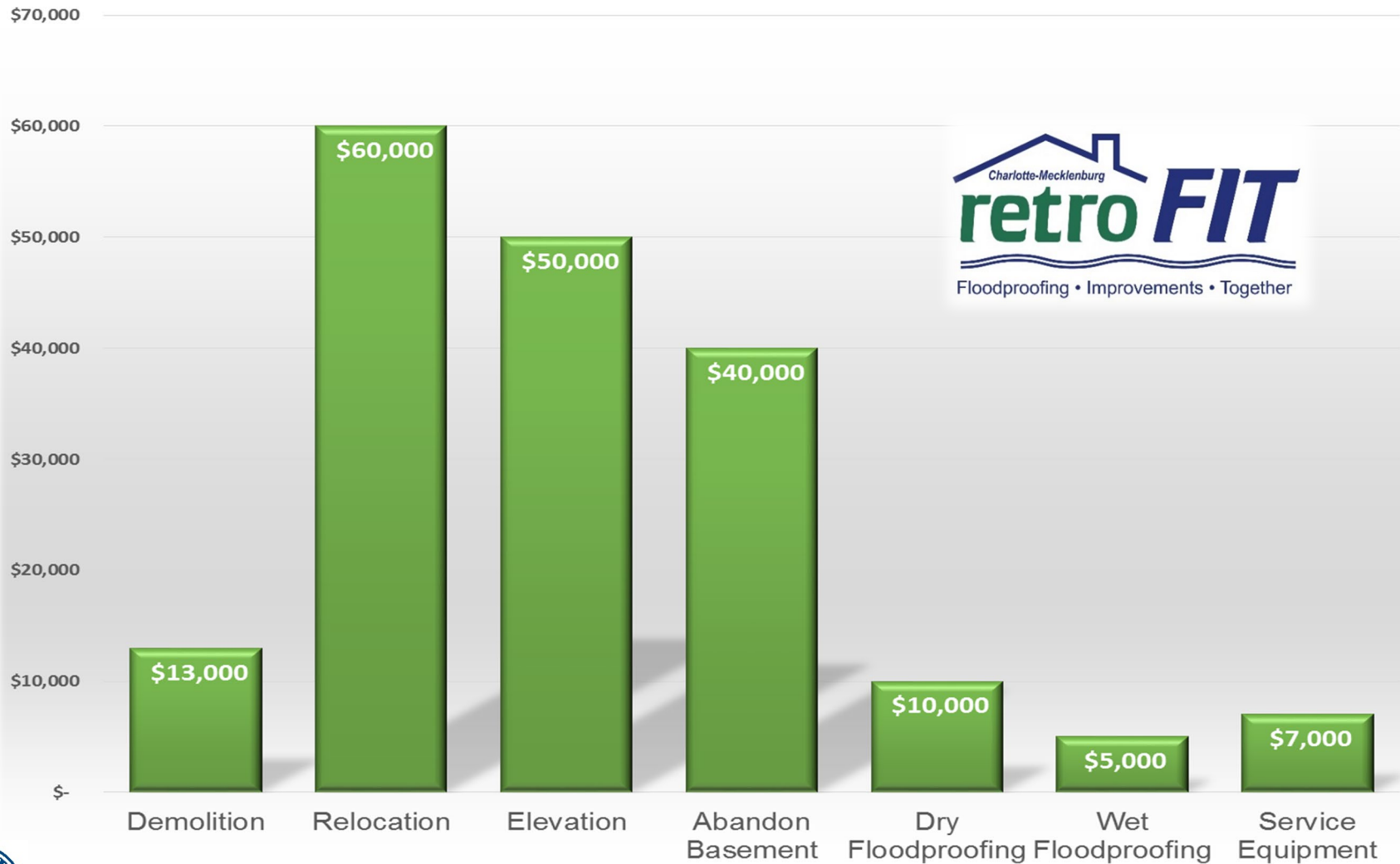




# RetroFIT Candidates



# Average Costs



# Program Lifecycle



# Application

## Program Promotion

Program  
Promotion

- Cyclical & ongoing outreach
- Targeted mailings, etc.



## Owner Interest Application

Owner  
Interest  
Application  
Period

- 2 month application window
- Simple application
- Owner cost share 10% – 25%
- Low to Moderate Income owners qualify for a lower contribution



# Review and Assistance

## Evaluation and Assistance

- Technical & cost assistance

## Pre Approval or Denial

- Feasibility & cost savings
- Eligibility, budget, & funds availability

## Formal Application

- Full detail of pre-approved projects



Evaluation  
&  
Assistance

Pre-approval  
or Denial

Formal  
Application  
Period



# Approval & Implementation

## Agreements and Appraisal

- SWAC Approval
- Owners consent
- Establish pre-mitigation value



## Owner Implementation

## Review & Closeout

- Inspections & grant payments
- Deed recordation & closeout



# Summary

- Cost-effective flood damage reduction solution
- Fills service gap
- Partnership with property owners



## Details

- \$250,000 allocation first year
- Advisory Committee submits annual report to Board
- Underutilized, until the June 10<sup>th</sup> flood



# Current RARR Concept



Access Individualized  
Flood Risk



Evaluate 19  
Risk Reduction Actions



Prioritize Mitigation Projects



Implement Balanced Flood  
Mitigation Capital Program





# Current RARR Methodology



## Assess Risk

- Assess risk based on 17 total risk criteria
  - **13 “impact” criteria** – evaluate and assign storm frequency-weighted scores for variety of flood impacts
  - **4 “location” criteria** – evaluate additional location-based risk factors and adjust base score

➔ Calculate risk scores



## Evaluate Mitigation

- Evaluate 19 risk reduction techniques
  - **Technique “Effectiveness”** – logic tests used to rank each technique as “Not Recommended”, “Further Evaluation Needed”, “Effective”, or “Highly Effective”
  - **“Effectiveness” Criteria** – Yes/No questions used to promote techniques through rankings

➔ Determine “Effectiveness”



## Prioritize Mitigation Action

➔ Calculate Priority scores



# Evaluate Mitigation

## Effectiveness

- Evaluate 19 risk reduction techniques
  - **Focus on:**
    - Technical feasibility
    - Regulation compliance
    - Community values
    - Amount/percentage of risk reduction

Not Rec, Further Evaluation, Effective, Highly Effective

## Viability

- Evaluate only effective techniques
  - Focus on:
    - Cost effectiveness
    - Return on Investment
    - Practicality
    - Social vulnerability

Viability Index  
1 (low) – 10 (high)



# Concept

- Enhance County's ability to manage a goal driven Flood Mitigation Capital Program:
  - ***Risk Assessment***
    1. ***Mitigation Effectiveness*** – Evaluation of how effective each mitigation technique is in reducing risk
    2. ***Viability Index*** – Scoring metric that considers practicality and affordability of implementing every effective mitigation technique
    3. ***SoVI Score*** – account for unintended consequences of a buyout project (as an example)
  - ***Residual Risk*** – Defines an individual and community level of acceptable future flood risk.



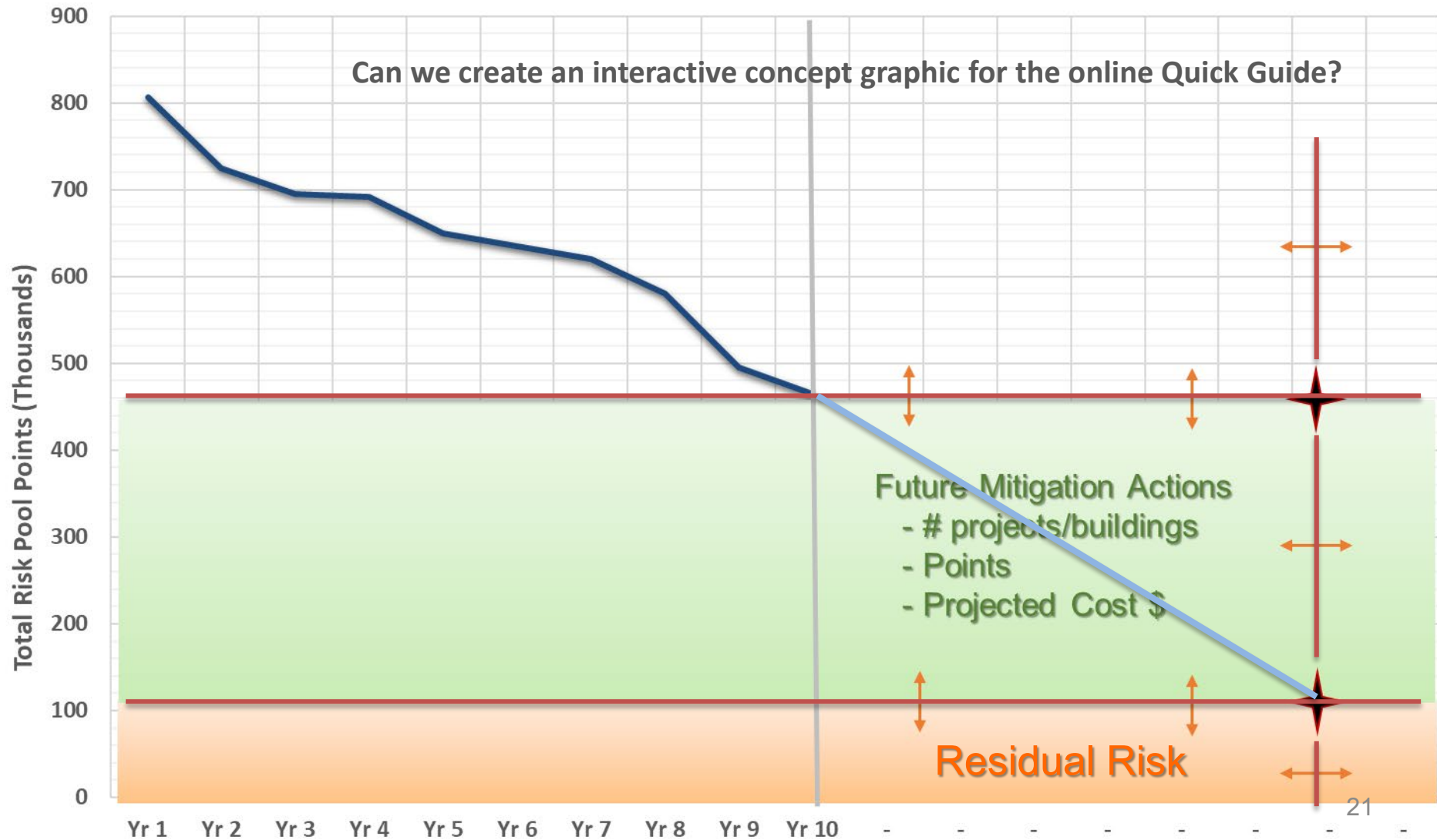
# Residual Risk

- Flood risk remaining if building is brought into compliance (in-place) or if acquired (risk removed)
- Summing all properties estimate community residual risk
- PROPOSED 2-Step Approach:
  1. Estimate residual risk for each building (w/o acquisitions) – most viable mitigation technique to bring into compliance
  2. Residual risk (w/ acquisitions) – any building that can be acquired (Effective, Highly Effective) is acquired
    - Risk goes to zero only for acquired structures



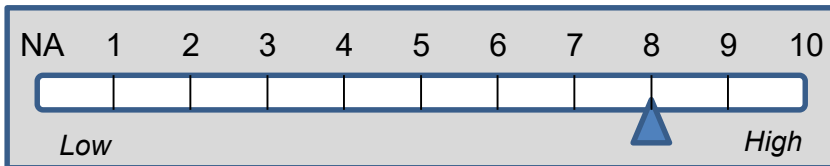
# Residual Risk

## Floodplain Properties - Flood Risk Score Pool

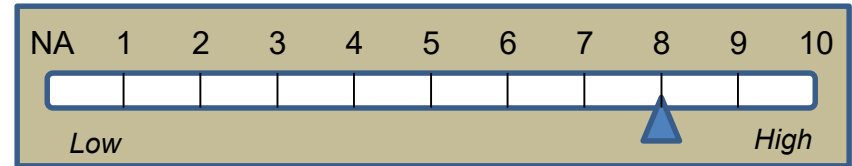


# Dashboard Concept

Buyout Viability Slider



Other Mitigation Viability Slider



## PROJECTED MITIGATION

# All Mitigation Projects:  
**1,200**

\$ All Mitigation Projects:  
**\$48.8M**

## COUNTY FUNDED PROJECT SUMMARY

# County Acquisitions:  
**200**

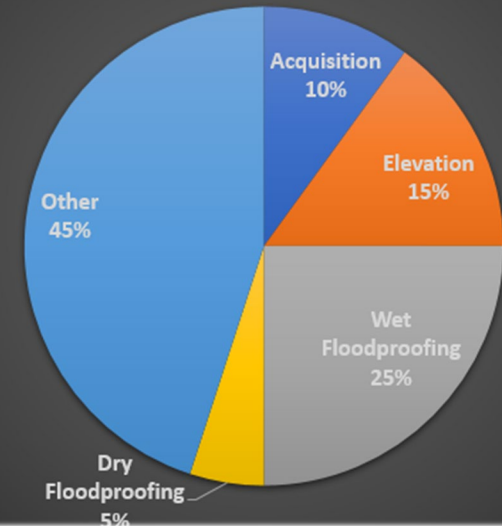
\$ Acquisition Cost:  
**\$24M**

## PROJECTED RISK REDUCTION

Current Total Risk Score:  
**55,000**

Residual Risk Score:  
**32,000**

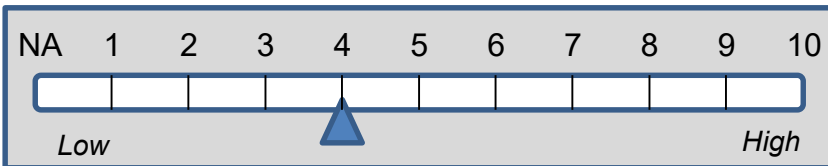
Mitigation Project by Type



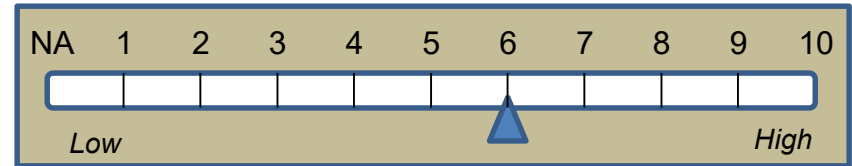
# Dashboard Concept

## Lower viability threshold; Lower residual risk

Buyout Viability Slider



Other Mitigation Viability Slider



### PROJECTED MITIGATION

# All Mitigation Projects:  
**2,350**

\$ All Mitigation Projects:  
**\$62.5M**

### COUNTY FUNDED PROJECT SUMMARY

# County Acquisitions:  
**350**

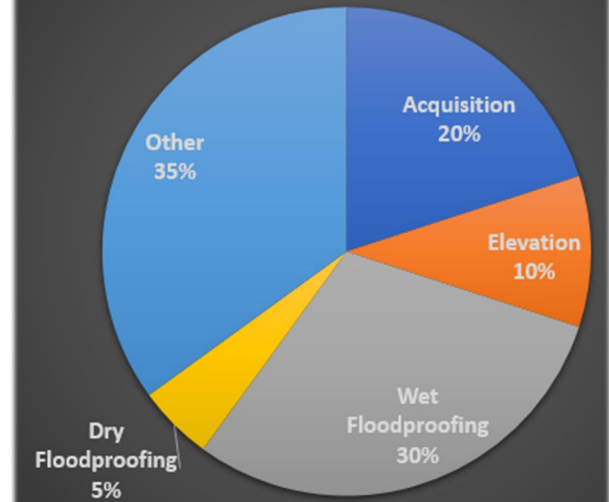
\$ Acquisition Cost:  
**\$42M**

### PROJECTED RISK REDUCTION

Current Total Risk Score:  
**55,000**

Residual Risk Score:  
**15,000**

Mitigation Project by Type



# Questions

