



Kickapoo River Flooding in Gays Mills, Wisconsin

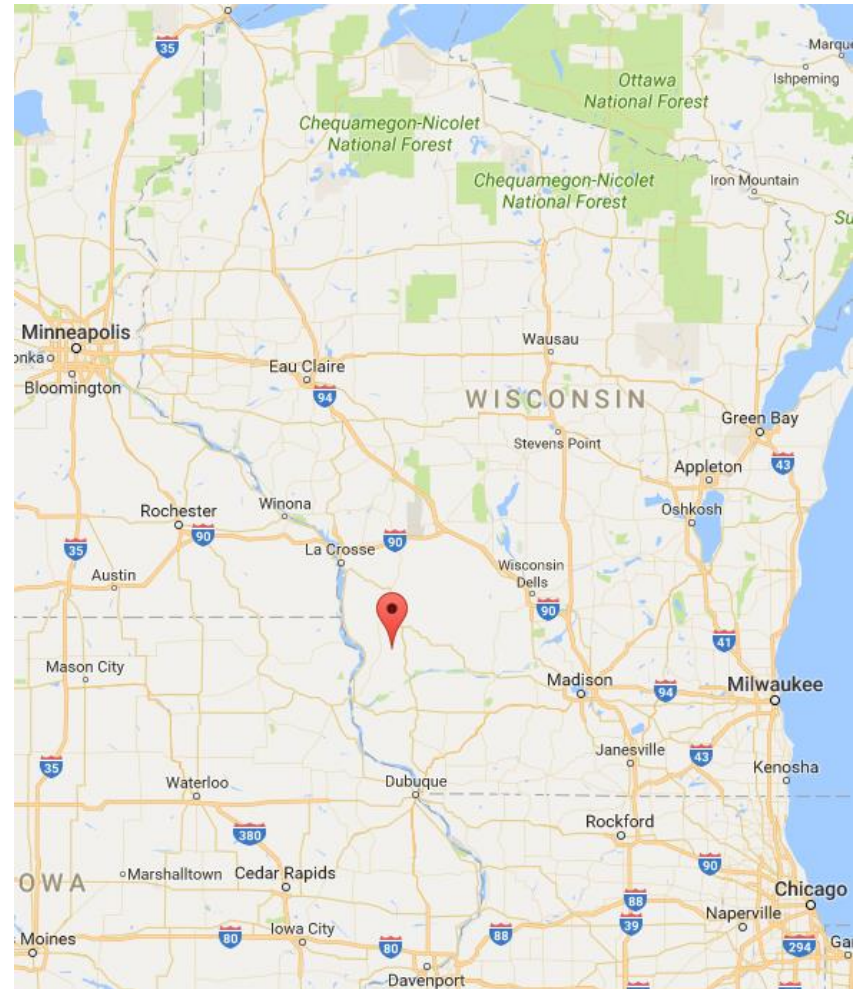
The Challenges, Success Stories, and
Resources Used

Presentation Goals

- Describe the history of flooding in Gays Mills
- Describe the village's challenges as they pertain to flooding
- Explain our success stories
- Report on the resources we've used

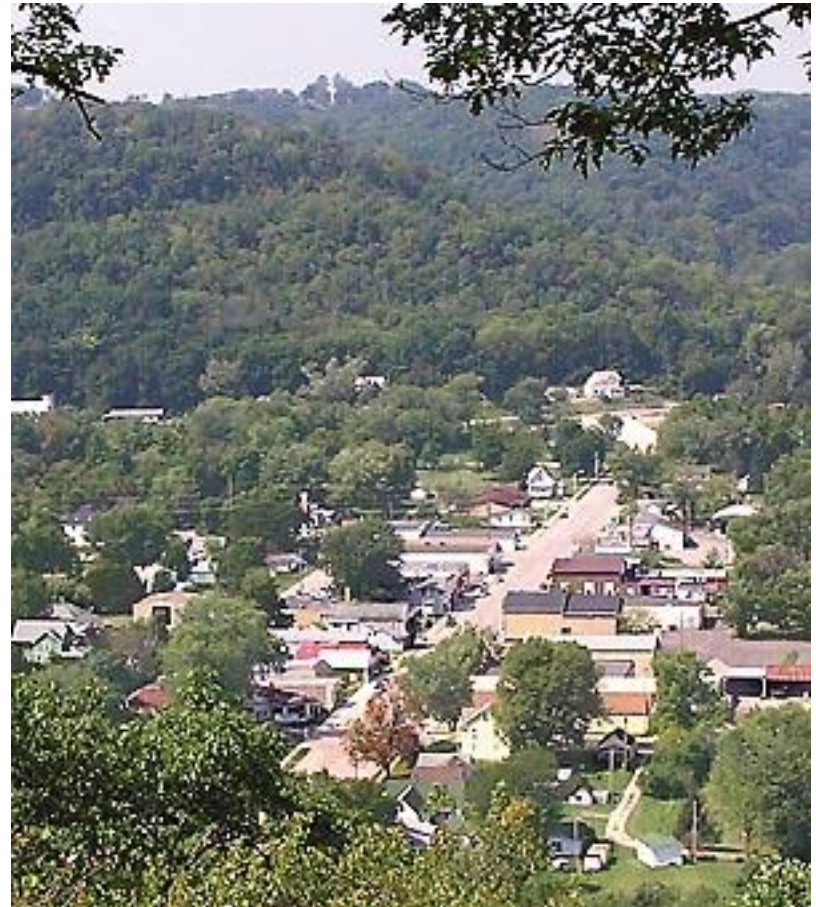
Village of Gays Mills

- Located in Southwest Wisconsin
- Population is 505



Brief History of Gays Mills

- 1839: Kickapoo River was first surveyed
- 1848: John Gay built a sawmill on the Kickapoo River
- 1892: Rail service connected villages up and down the Kickapoo River
- 1905: Apple orchards established

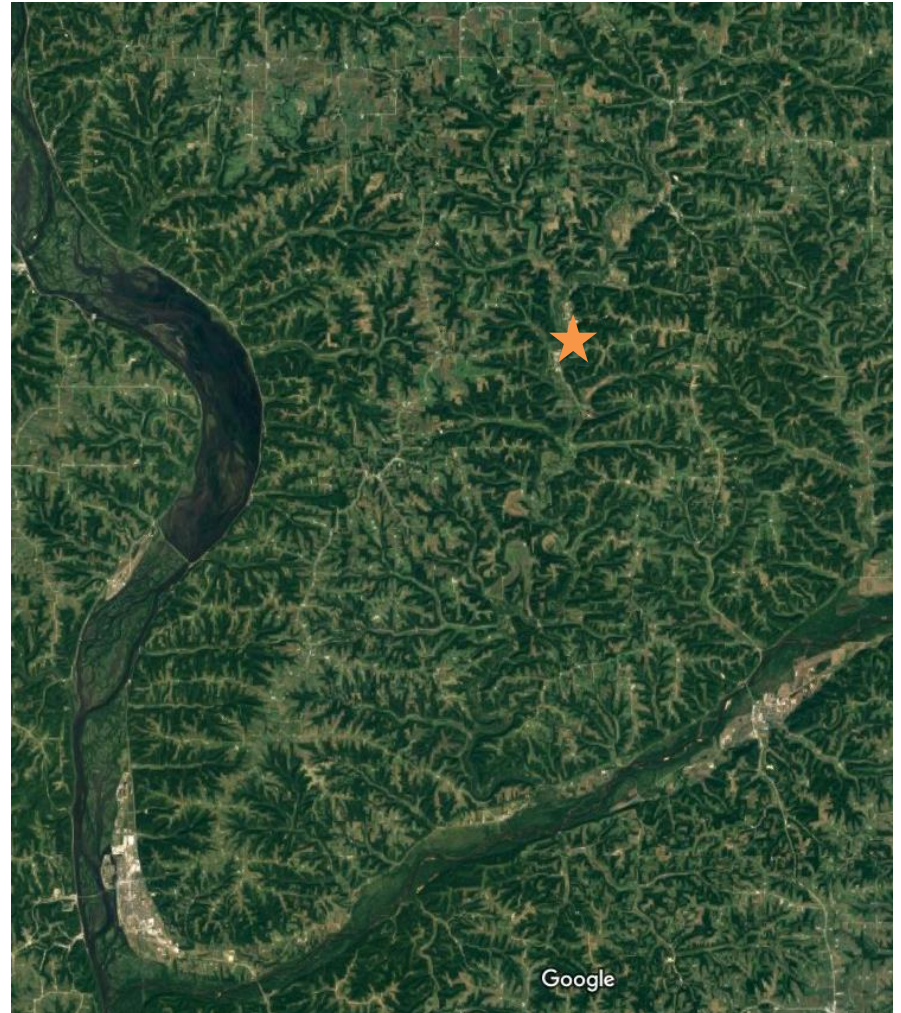


Our Biggest Challenges

- We are a small village with limited resources
- Our geography, sentiment issues, and river type make it difficult for us to control flooding

Unique Geography of Gays Mills

- Part of the un-glaciated Driftless Region, aka:
 - Ocooch Mountains
 - Western Upland of Wisconsin
- Valleys created by river/stream erosion
- Gays Mills was built along the Kickapoo River



Ocooch Mountains

- 350 feet above the Kickapoo River valley
- 300+ species of rare plants and wildflowers
- 100+ species of bird

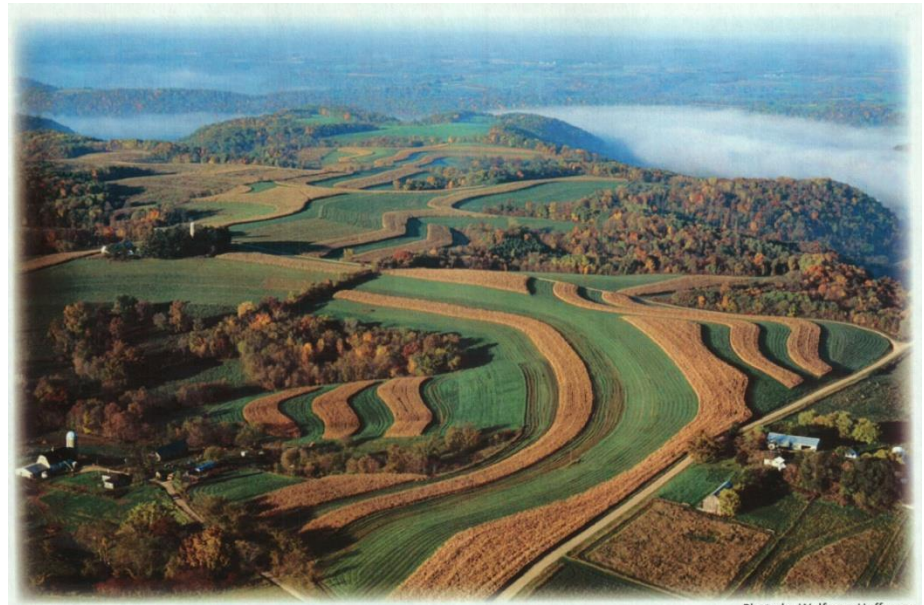
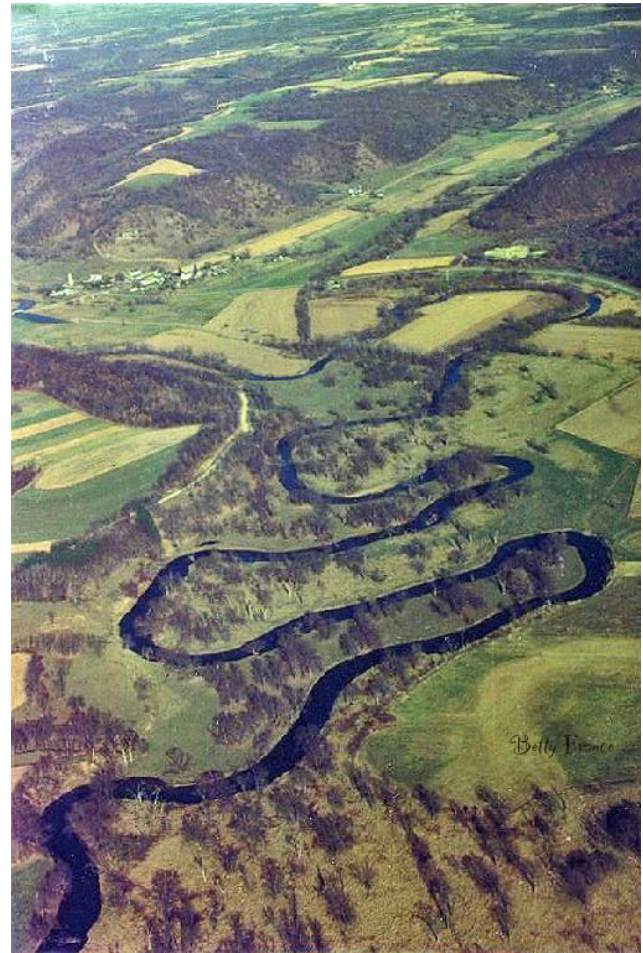


Photo by Wolfgang Hoffmann

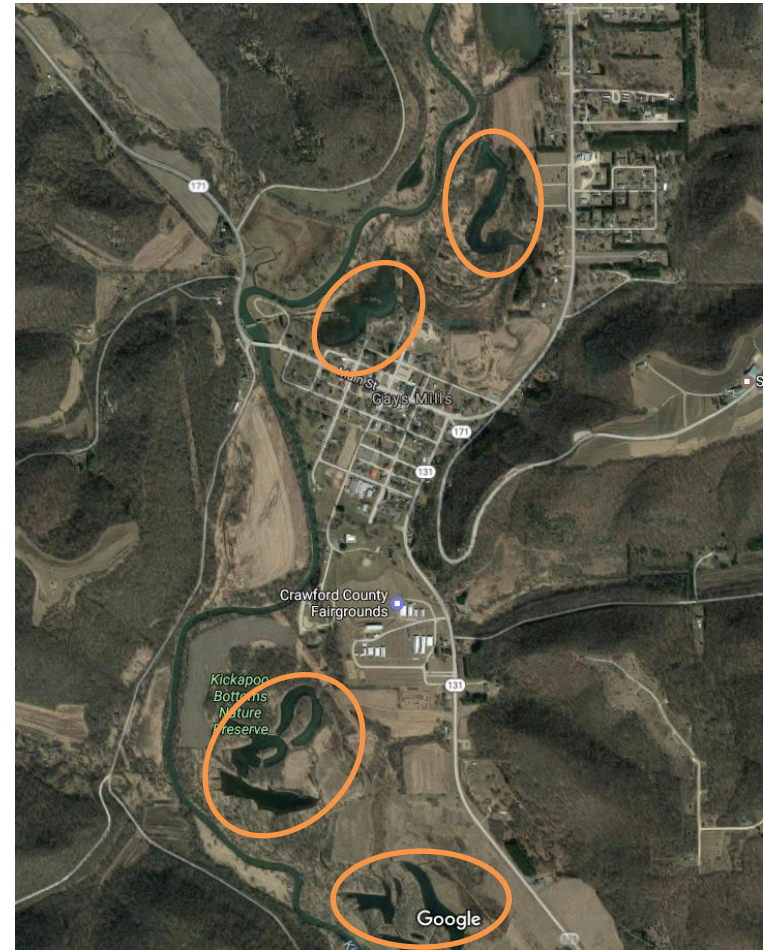
Kickapoo River

- Known as the “crookedest river in the world”
- Length
 - Flow: 126 miles
 - Source to mouth: 60 miles
- Size
 - Drainage: 800 square miles
 - Watershed: 492,000 acres



Kickapoo River (Continued)

- Oxbows retain water in old river channels
- Swamp land in river bottom
- Lots of sediment in the floodplain



Contributing Factors

- Prior to European settlers, the area around Gays Mills included: prairies, oak savannas, upland forests and valley wetlands
- Settlers filled wetlands, cut forests, rerouted waterways, and plowed slopes
- Massive erosion after heavy rains left sediment in the valleys and floodplains
- Today farmers use sustainable practices (like strip cropping) to avoid erosion and some land has been reforested

Recorded History of Flooding

- 1907
- 1912
- 1917
- 1935
- 1951
- 1962
- 1963
- 1965
- 1966
- 1967
- 1972
- 1973
- 1975
- 1978
- 1980
- 1981
- 1982
- 1993
- 2000
- 2004
- 2007
- 2008
- 2016

Crests in Gays Mills

(flood stage of 13 feet)

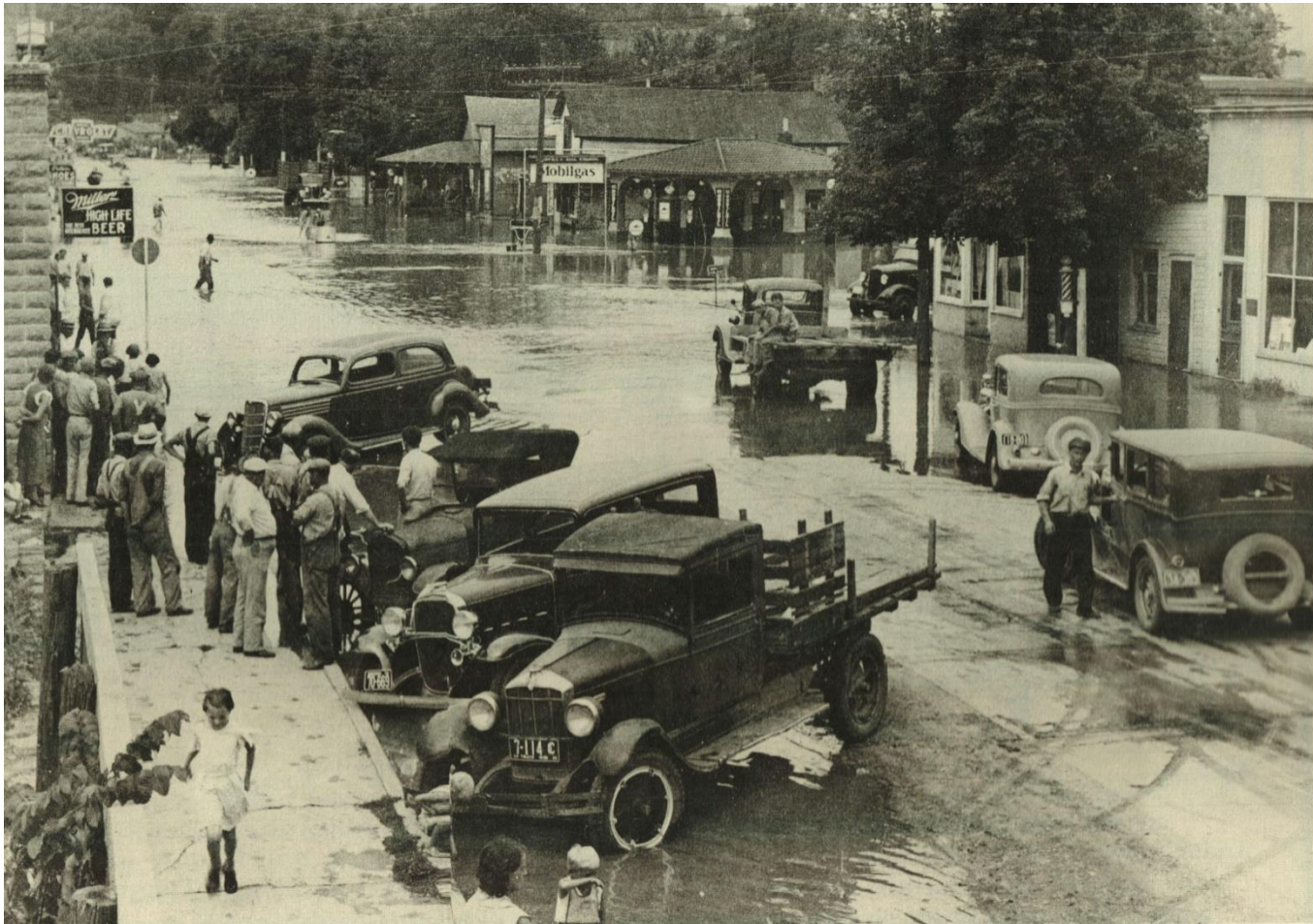
Historical Crests

#	Date	Crest Height
1	06/09/2008	20.44 ft
2	07/02/1978	19.80 ft
3	08/20/2007	19.79 ft
4	09/23/2016	18.10 ft
5	02/10/1966	16.75 ft
6	06/01/2000	16.50 ft
7	04/03/1982	16.10 ft
8	07/22/1951	16.00 ft
9	03/03/1965	15.80 ft
10	08/16/2010	15.43 ft

Crests in Last 17 Years

#	Date	Crest Height
1	06/09/2008	20.44 ft
3	08/20/2007	19.79 ft
4	09/23/2016	18.10 ft
6	06/01/2000	16.50 ft
10	08/16/2010	15.43 ft
13	09/09/2016	14.62 ft
14	05/25/2004	14.51 ft
15	07/10/2000	14.45 ft
22	06/03/2004	13.80 ft
23	08/24/2016	13.73 ft

1935 Flood



1935 Flood



1978 Flood



Photographer Unknown

2007 Flood



Betty France

2008 Flood



2008 Flood



Photo by: Kate Vereschagin

2010 Flood



2016 Flood



Flooding Impact on Population

Year (source)	Population	% Change	Comments
1960 Census	634	-	
1970 Census	623	-1.7%	
1980 Census	627	0.6%	
1990 Census	578	-7.8%	Multiple floods and buyouts
2000 Census	625	8.1%	
2010 Census	491	-21.4%	2 major floods caused decrease
2016	505	2.8%	

Flood Containment Efforts in the Kickapoo River Valley

- 1930s: First proposals to dam the Kickapoo
- 1962: Congress approved flood control plan for the Kickapoo River Valley
 - Dam and recreation lake near mouth of river
 - Levee in Soldiers Grove (7 miles upriver of Gays Mills)
 - Construction by U.S. Army Corps of Engineers

Flood Containment Efforts in the Kickapoo River Valley

- 1969: Acquisition of 140 farms
 - Majority of farms did not want to sell
- 1970s: Construction began on dam and levee
- 1975: Dam project stopped
 - Environmental impact
 - endangered species
 - water quality concerns
 - Re-evaluation of the cost-benefit
 - Land now jointly owned by the Bureau of Indian Affairs (held in trust for the Ho-Chunk Indian Nation) and the State of Wisconsin. It is open to the public.

Flood Containment Efforts in Gays Mills

- 1980s:
 - Levee referendum did not pass
 - Houses raised, moved, and leveled
- 2000s:
 - Relocation study and commitment
 - Houses and business are raised, moved, and leveled

“Greater than 500-year flood events”

- Gays Mills experienced back-to-back “greater than 500-year flood events” in 2007/2008 (FEMA)
 - 100-year flood has a 1% probability of occurring in any given year
 - 500-year flood has a 0.2% probability of occurring in any given year
- The 2008 flood was declared a National Disaster by President Bush
 - 90 percent of the original village site flooded in 2008

Emergency Action Plan and Clean-up

- County Emergency Management – Weather Predictions
- Fire Department - Watch River Level
- Fire Dept. – Evacuations to Community Center (no sirens, 3-4 hrs notice)
- Fire Dept. secures Village
- Work with other communities on emergency services
- Clean-up and re-enter into homes/businesses

Recovery Planning

- FEMA activated the Long-Term Community Recovery (LTCR) program on the heels of the National Disaster declaration
- The Gays Mills Village Board requested LTCR assistance and held a kickoff meeting in August 2008
- LTCR is a 3-month planning process between committees, community, and multi-level officials
- By October 2008, a LTCR plan was complete

LTRC Plan for Gays Mills

- The LTRC Plan served as a framework for the Village's recovery efforts
 - “Focus on sustainable and resilient future”
 - Outlines “critical funding and resource allocation decisions”
- The Village Board is responsible for prioritizing plan items and overseeing implementation

Recovery Objectives

- Provide for more options and choices in housing types
- Recreate neighborhoods that are pedestrian friendly
- Preserve and create affordable housing
- Support the retention of existing businesses and encourage new entrepreneurs
- Incorporate sustainable design principles in future developments
- Provide public facilities and services in a coordinated and efficient manner to meet current and future needs
- Promote small businesses that support tourism and create a destination for Gays Mills and the Kickapoo watershed

Four Recovery Options

1. No Action Alternative

- Keep with previous acquiring/demolishing and elevating efforts

2. Levee Option

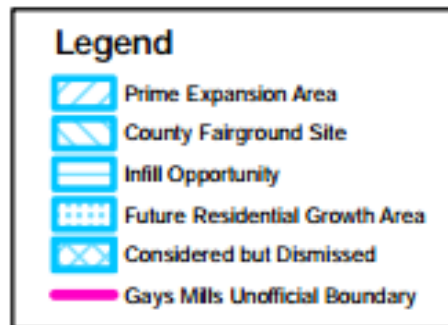
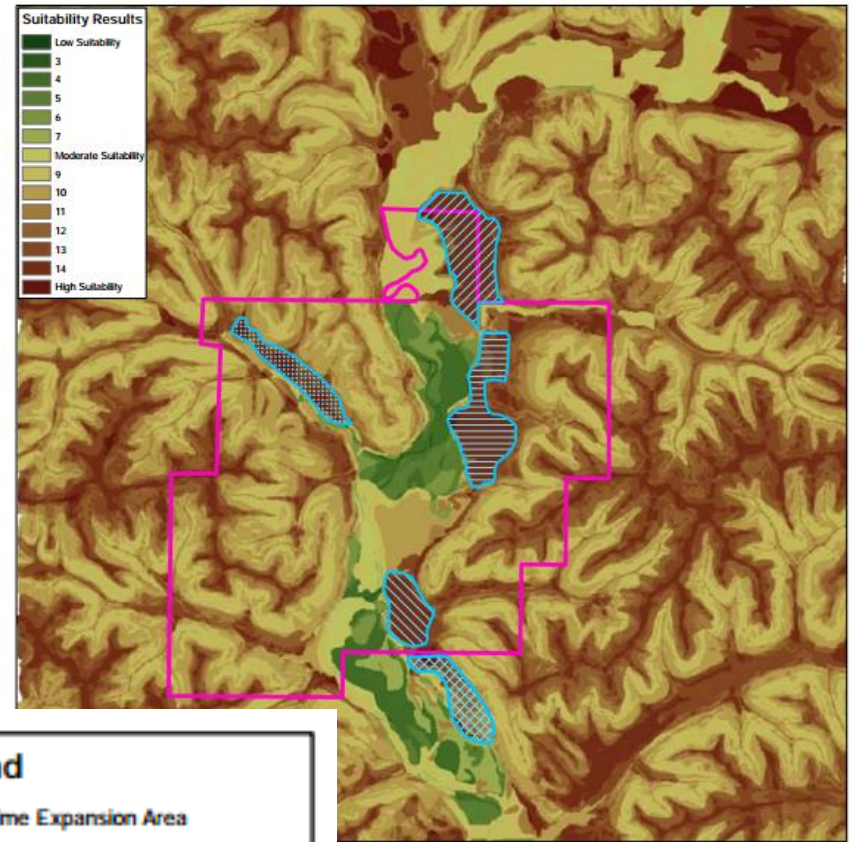
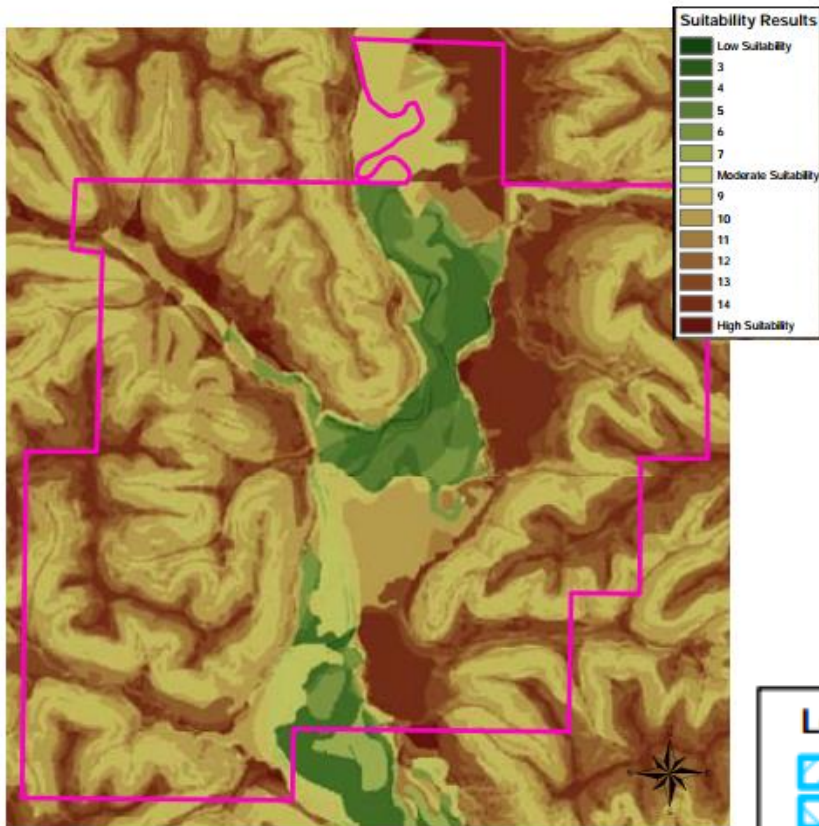
- Not feasible for financial, risk, and technical reasons

3. **Partial Relocation**

- **Voluntary relocation for residents and businesses**

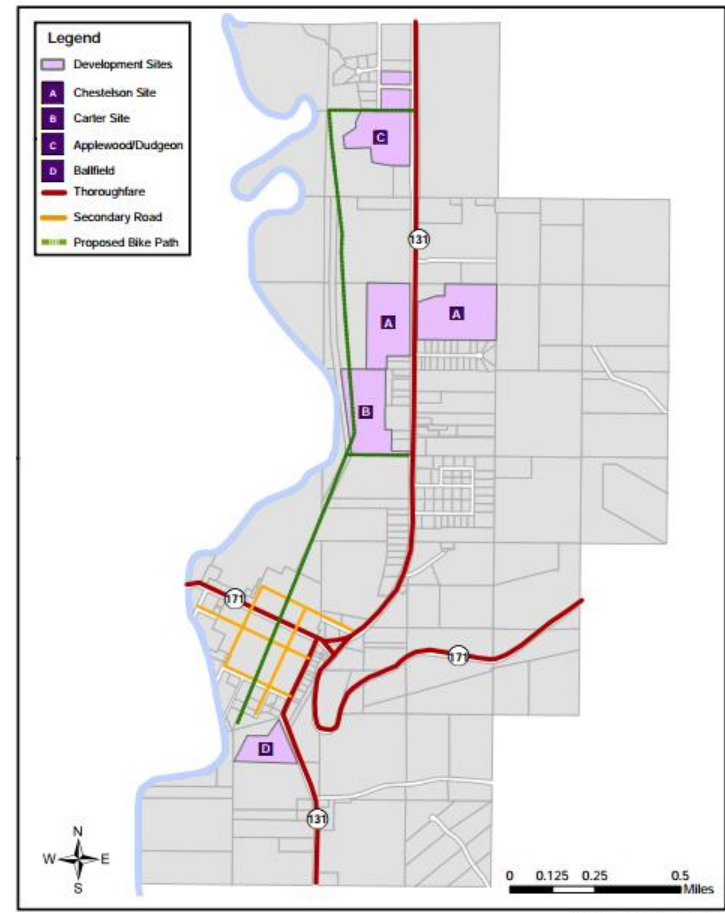
4. Total Relocation

Suitability Maps



Relocation Site Selection

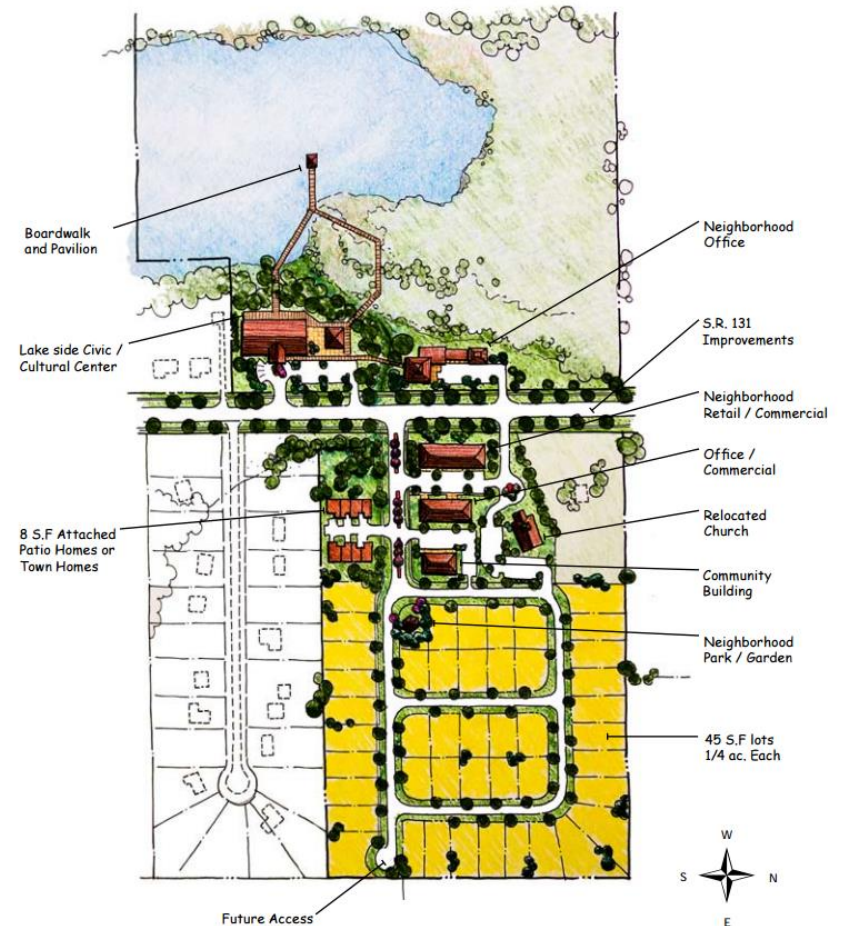
- “Lands within the incorporated limits of Gays Mills are severely constrained by landscape features, wetlands and floodplain regulations.”



Development Sites

Site A - Chestelson

- Nearly 30 acres
- Land on both sides of Route 131
- Plan included:
 - 45 single family residential lots
 - 9 patio/townhomes
 - 18,000 SF of commercial buildings



Relocation Process

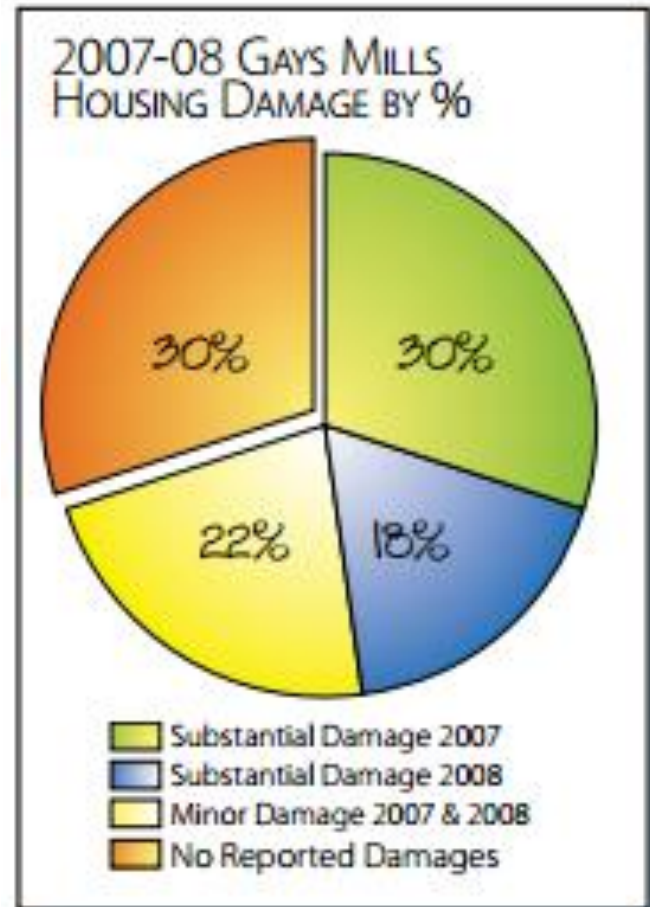
- Staged approach
 - Infrastructure
 - Water and sewer
 - Roads
 - Sidewalks
 - Buildings
 - Etc
- Vision included
 - multi-use buildings
 - Relocating public works and community offices
 - Driving business to new end of village

Funding

- Gays Mills was pre-approved for millions of dollars, but that funding was cut when other damages came in
- The Village had to revamp plans for buildings, etc. to stay within new budget

Housing

- 75% of homes are mortgaged
- Rental properties were substantially damaged
- After 2007 flood:
 - 53% of homes in historic center were damaged
 - 30 properties were in the process of buyouts



Housing (Continued)

- After 2007 flood, majority wanted to elevate
- After 2008 flood, majority wanted a buyout
- Issues with this change:
 - Village had to modify applications for funding
 - Some people waited to ask for a buyout at the very end after the money had been already spent
- Some people took the buyout and left village
- Some residents did not qualify because of their higher income

Gays Mills Village Hall

- Multi-use building
- Village offices
- Community Library
- Community Kitchen (food business incubator)
- Community Room (rentable)
- Police office (used by the County Sheriff as their “North District” office)

Gays Mills Village Hall



Gays Mills Village Hall

- Two companies have already moved out of the kitchen to their own buildings
- Frequent use
- Cooking classes and demonstrations



Gays Mills Village Hall



- Community room rentals include:
 - Wedding receptions
 - Baby showers
 - Bridal showers
 - Funerals
 - Family reunions
 - Testing by the school district

Gays Mills Mercantile Center

- 80 percent full
- Businesses include:
 - Newspaper office
 - Hair/nail salon
 - Barber
 - Thrift shop
 - Insurance office
 - Realtor offices
 - Food Pantry



Gays Mills Market Place

- Grocery store
- Gas station
- 3 business partnered to create one sustainable business (2 flood relocated business)



Green Building

- Geo-Thermal at Community Commerce
- Insulated Concrete Forms at Mercantile
- Solar Hot Water Heaters at Multi-Family Units
- LED Street Lights

Funding Sources

2007 through 2017

Community Development Block Grant –Emergency Assistance Program (Department of Administration) - Funded Residential Rehab, Residential Acquisitions and Removal, Land Acquisition, Infrastructure, Community Commerce Center, EMS Building, Business Assistance, and Administration

Wisconsin Emergency Management/Dept. of Health – Funded the position of Flood Recovery Manager for one year

Community Development Block Grant – 8 Apartment Units with partner

Community Development Block Grant – 7 Apartment Units with partner & Rental Elevations

Economic Development Administration– Funded Mercantile (Business Incubator), Commercial Kitchen & Equipment, Administration, Infrastructure, Geo-Thermal, 3 year Central Business District Manager position

Funding Sources

2007 through 2017 (Continued)

USDA/Rural Development Grant – Funded Water and Sewer Infrastructure and Public Works Building

USDA/Rural Development Grant/Rural Business Enterprise Grant – Funded Land Acquisition Site C

Hazard Mitigation Grant Program/FEMA & Wisconsin Emergency Management –
4 Grants Funded for Acquisitions and Removal of Residential Homes and
Elevation/Flood Proofing Residential Homes

Department of Natural Resources – 4 Grants Funded Acquisition and Removal of
Residential Homes and Elevation/Flood Proofing Residential Homes

Redevelopment Authority – Created in order to carry more debt capacity, Loan for
portion of Community Commerce Center

Results of Funding Sources 2007 through 2017

- 57 Acquisitions and Removal of Structures
- New Infrastructure
- 14 Homes Rebuilt in Site A
- 2 Homes Re-purchased within Village
- 15 Multi-Family Units in Site A
- 19 Elevations and Flood proofing's
- Mercantile Building with 13 commercial spaces
- Community Commerce Center
- Public Works Building
- EMS Building
- 6 Businesses Relocated
- Relocation project costs over \$20,000,000

The Future

- Bring in more businesses
- Continue to build more housing, including higher-income housing for business employees
- Sustain growth in population and incubator businesses
- Growth of the village not just important for us, but also:
 - Neighboring towns
 - County
 - School
 - Public works
 - Police and safety

Working with Local Fire and Rescue EMS Departments

- Establish emergency action plans
- Keep records of who is doing what and when
 - Sign-in sheets
 - Equipment costs
 - Hourly wages
 - Bylaws (Prior to Disaster)
 - Agency rules



Find the Right People

- Village staff have increased work to do during times of need
- Hire someone to help plan and implement anything specific to flood projects

Build Relationships with Agencies

- Groups include:
 - Fire Dept./EMS
 - County Emergency
 - Salvation Army
 - Red Cross
- Services:
 - Shelter
 - Food/Water
 - Clothing/Toiletries



Record Keeping

- Varies by agency
- Know what to keep and for how long
- Organize and store necessary documents

Classifications

- Gays Mills experienced back-to-back greater than 500-year flood events in 2007/2008
 - 100-year flood
 - 1% probability of occurring in any given year
 - 500-year flood
 - 0.2% probability of occurring in any given year
- These are important to know because they:
 - Determine how high homes must be elevated
 - How much and types of funding available

Planning Ahead

- Go SLOW
 - Quick action is often emotional for citizens – let them mourn and process
 - Plan, review, plan, review, plan, review
 - Seek input from nearby communities and organizations
- Future budgets should include increased expenses for when things are no longer under warranty

Village of Gays Mills Long-Term Community Recovery Plan

[http://emergencymanagement.wi.gov/recovery/docs/2015/long-term-recovery/Village of Gays Mills Recovery Plan 2008.pdf](http://emergencymanagement.wi.gov/recovery/docs/2015/long-term-recovery/Village%20of%20Gays%20Mills%20Recovery%20Plan%202008.pdf)

www.gaysmillswi.com

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**DOES ANYONE HAVE ANY
QUESTIONS?**

