

Appendix A

Stakeholder Engagement - LLPT Meeting Information

Allegany County, NY

LLPT 1 Meeting Notes

ATTENDEES

Randy Shayler

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Earl Johnson

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Dean Arnold

Title: Highway Superintendent

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Jeff Lucky

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Kler Dirlam

Title: County Planning Director

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NYSDEC

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WELLSVILLE & BOLIVAR, NEW YORK

DATE: THURSDAY, JUNE 27, 2019 **TIME:** 2:00 PM – 3:30PM

LOCATION: Wellsville Village Hall Boardroom,
156 N. Main Street Wellsville, NY 14895

Action Item	Owner
1. FEMA to provide fact sheet about insurance rates in Zone X (non-mandatory flood zone)	FEMA
2. Town of Wellsville to contact NRCS requesting design and as-built information for the NRCS levee system along Dyke Creek.	Town of Wellsville (Dean Arnold)
3. LLPT Members to review & upload documents to file transfer protocol (FTP) site	All

FTP Site Information

Wellsville

Browser link:

<https://projsftp.stantec.com>

Login name: WELLSVILLE1710

Password: 5967984

Bolivar

Browser link:

<https://projsftp.stantec.com>

Login name: BOLIVAR1711

Password: 8134900

AGENDA

2:00 p.m.

2:10-3:30 p.m.

3:30-3:40 p.m.

3:40-4:00 p.m.

WELCOME AND INTRODUCTIONS

PRESENTATION

LOCAL LEVEE PARTNERSHIP TEAM FORMATION

NEXT STEPS, QUESTIONS, REVIEW



FEMA

RiskMAP
Increasing Resilience Together

Allegany County, NY

LLPT 1 Meeting Notes

ATTENDEES *Continued*

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MEETING OVERVIEW

The Federal Emergency Management Agency (FEMA) Region II levee team, the U.S. Army Corps of Engineers (USACE), and the New York State Department of Environmental Conservation (NYSDEC) coordinated with Allegany County, Town and Village of Bolivar, and Town and Village of Wellsville officials to initiate a levee discovery study to identify potential flood hazards for local levee systems.

Flood hazards and risks in levee impacted areas are complex, so FEMA is initiating the discussion about levees early in the flood insurance study lifecycle. This also promotes appropriate identification of flood risks in local mitigation plans.

FEMA engages with community leaders to develop appropriate flood hazard depiction in the community. Engagement begins with participation of the community, State and Federal officials and stakeholders in a Local Levee Partnership Team (LLPT). This group will share data and participate in discussions on potential analysis and mapping options throughout the duration of the levee project.

The levee analysis and mapping study will provide the community a better understanding of how much the levee impacts flood risk under current conditions.

MEETING NOTES

The National Flood Insurance program uses the 1-percent-annual-chance flood event (also known as the 100-year flood) as the minimum requirements for floodplain management and insurance.

Bolivar Levee Systems

- For levee system locations please refer to LLPT 1 presentation
- Effective FIRM Panel link: [3600260001C](#)
- As part of the analysis the study team will request any technical data associated with the flood control structure and any flood records.

Allegany County, NY

LLPT 1 Meeting Notes

ATTENDEES Continued

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Notes continued

- The Village and Town of Bolivar were not available for the LLPT Meeting. It was noted by attendees that the locality is preparing a downtown and locality-wide comprehensive plan.
- The flood hazard analysis for the Bolivar system will require a hydraulic study to determine the capacity of the channel and how the elevation of the 1-percent-annual-chance flood event relates to the levee crests at the top of the channel banks.
- The system was constructed by USACE. The contractor defaulted prior to completion and USACE doesn't have very good as-built information.
- The downstream extent of levee was extended to the footbridge and an additional structure was built upstream compared to what's shown on the plans.
- During high flows, overflow from the channel would sheet flow behind the levee from east to west (would not pond).
- The south side of the creek is high ground.
- There currently is not an Operation and Maintenance (O&M) manual. NYSDEC and the Village of Bolivar have an agreement for the Village to perform O&M.
- The drop structures were constructed to control sedimentation and maintain reasonable channel bed slope.
- USACE performed a screening level risk assessment, which is currently under review by USACE HQ.

Wellsville Levee Systems

- For levee system locations please refer to LLPT 1 presentation
- Effective FIRM Panel links:
 - Village: [3600360001B](#) and available on FTP site
 - Town: [3600350020B](#) and available on FTP site
 - LOMR: Available on FTP site
- The area includes three USACE constructed systems as well as a levee system built by NRCS along Dyke Creek that is not shown on the NLD.
- The USACE Genesee River and Dyke Creek levee systems are not shown as reducing flood risk on the effective FIRM. The Village of Wellsville may have prepared a submission for a Letter of Map revision in the early 2000s, but submission status is unknown.

Allegany County, NY

LLPT 1 Meeting Notes

Notes continued

- USACE noted that the USACE Genesee levee systems were constructed in the 1950s and then reconstructed in the late 1970s. They are in relatively good condition and are being rehabilitated from some light storm related erosion and pipe damages. Several additional gate wells are also being constructed. USACE also noted that the levee system may not be designed to perform during the 1-percent-annual-chance-flood event.
- The USACE Dyke Creek levee system inspection rating is unacceptable because of shoaling in the channel (still in the PL84-99 program)
- The NRCS Dyke Creek levee system is shown as reducing flood risk based on a 1996 Letter of Map Revision issued by FEMA.
- Dean Arnold to contact NRCS to request design and as-built information for the NRCS levee system.
- The community noted that there is a lack of stream gage data available to assist with emergency management.

Next Steps

- Data collection and data sharing within the LLPT. Data requested typically includes the following:
 - as-built records
 - levee crest surveys
 - engineering and structural design reports
 - operation and maintenance plans
 - high water marks from historic storm events
 - inspection reports
 - LOMCs with data support
- Develop a draft flood hazard analysis to identify preliminary risks in levee impact areas.
- Schedule follow-up meetings to discuss progress and results from the study.
- Prepare a levee analysis and mapping plan to inform future flood hazard mapping projects.

Allegany County, NY Village of Bolivar and Town of Bolivar Village of Wellsville and Town of Wellsville Levee Flood Hazard Identification

Local Levee Partnership Team (LLPT) Meeting 1

June 27, 2019



FEMA

“ Levees reduce the risk of flooding. But no levee system can eliminate all flood risk. There is always the chance that a flood will exceed the capacity of a levee, no matter how well it was built. Levees do not always perform as intended. In fact, levees sometimes fail even when a flood is small.”

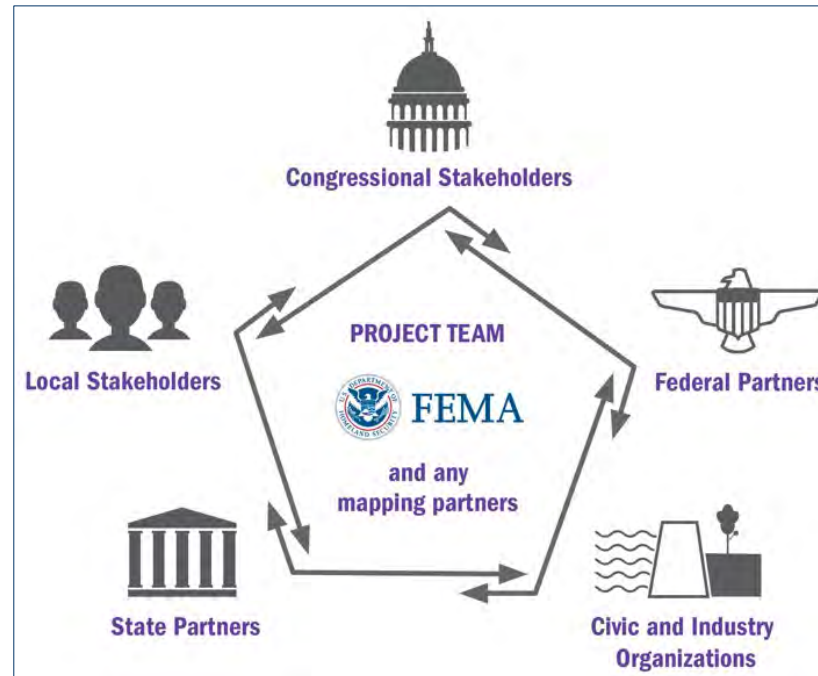
— American Society of Civil Engineers



FEMA




The Focus is on Flood Risk

The Federal Emergency Management Agency (FEMA) works with Federal and State partners, local communities and other stakeholders to assess and communicate flood risks in areas impacted by non-accredited levees.



FEMA

Today's Agenda

1	2	3
Levee System Overview	Levee Flood Hazard Identification	Path Forward & Next Steps
		



FEMA

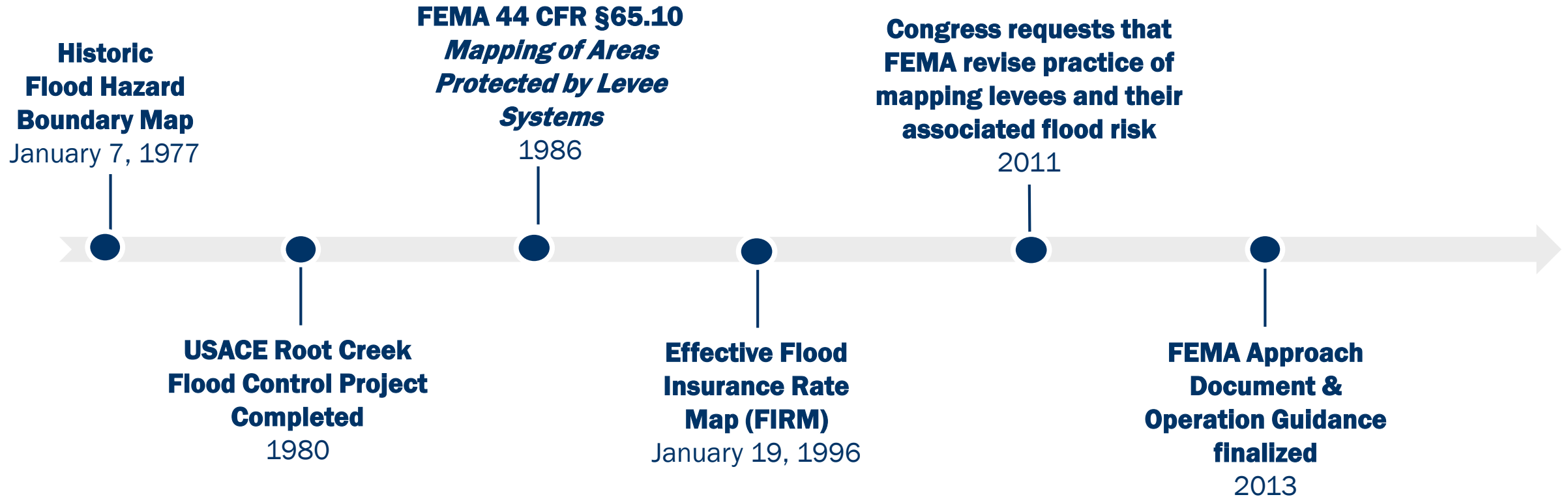
Levee System Overview



FEMA

Right Bank Root Creek Levee System

Village and Town of Bolivar, NY



FEMA

Right Bank Root Creek Levee System – NLD

←

National Levee Database

HOME

ADVANCED SEARCH

DASHBOARD

MAP

MORE

SIGN

Bolivar - Right Bank Root Creek

Info

Map

DOWNLOAD DATA

Location

Bolivar, Allegany County, New York

USACE Districts

Pittsburgh

FEMA Regions

2

SUMMARY

SYSTEM

SEGMENTS

RISK

FEMA - NFIP/FIRM

FEATURES

PROFILE

ATTACHMENTS

Project Description

VIEW

No Data Entered

Risk Characteristics

VIEW

Levee Safety Action Classification

Not Screened

People at Risk 286

Structures at Risk 122

Property Value \$40.4M

Assessment Date N/A

Risk Characterization Summary

No Data Entered

Structure and Features

VIEW

Total Miles

0.26 Miles

Length of Embankment (miles)

0.26

Length of Floodwall (miles)

0

Average Height

No Data Entered

Year Constructed

No Data Entered

Number of Closure Structures

No Data Entered

Key Documents

VIEW

Levee System Summary

Download

FEMA - NFIP/FIRM Information

VIEW

Levee System Status on Effective FIRM

Non Accredited

USACE Rehabilitation Status

VIEW

Status

No Data Entered

Latest Inspections

Segment Name

Inspection Date

No segment inspections found

Segments

VIEW

Bolivar - Right Bank Root Creek

Source: National Levee Database (NLD)

<https://levees.sec.usace.army.mil/#/levees/system/4905000073/summary>

Basemap: Aerial


LEGEND

Levee Features

Leveed Area

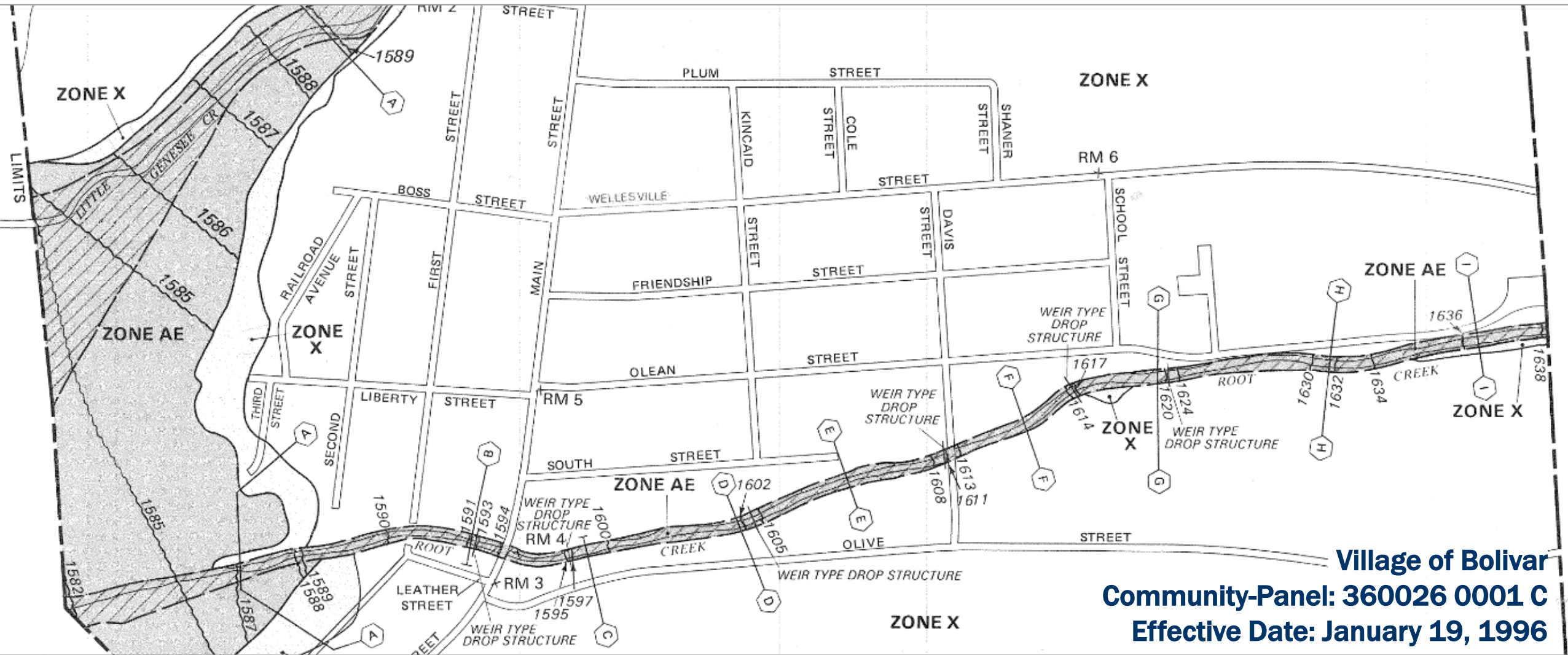
Levee Systems

Levee System



FEMA

Effective Flood Insurance Rate Map (FIRM)



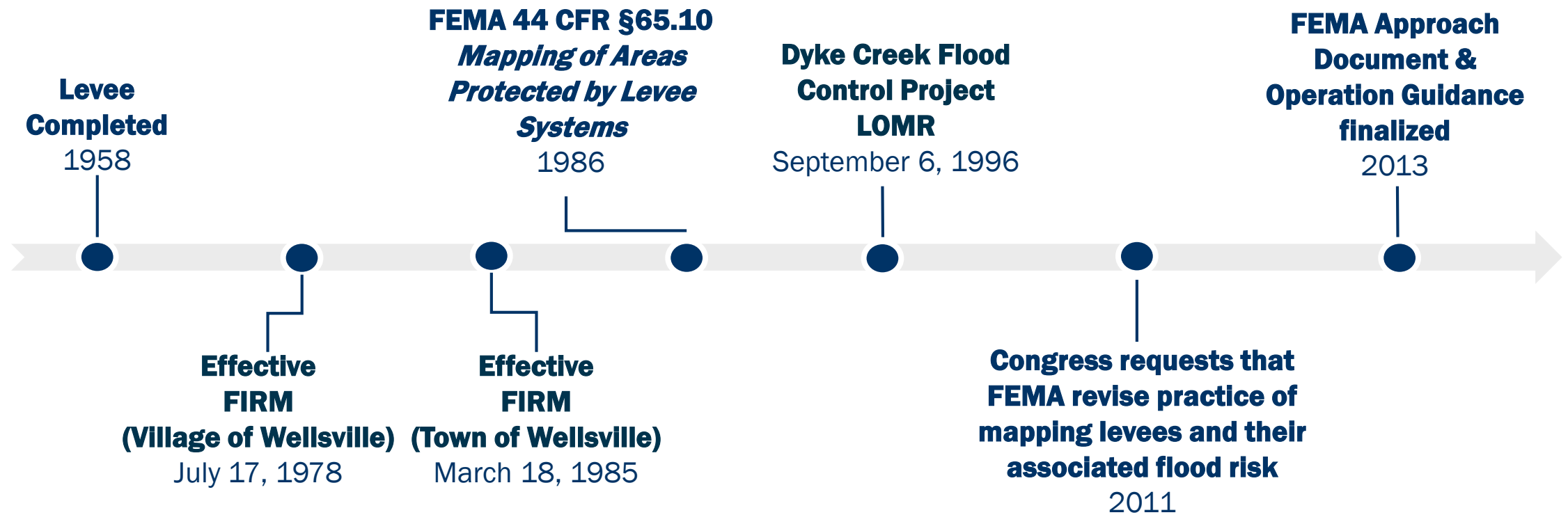
FEMA

Genesee River Left and Right Bank Levee Systems

Dyke Creek Left Bank Levee System

Dyke Creek Flood Control Project

Village and Town of Wellsville, NY



FEMA

Genesee River Left Bank Levee System - NLD

← National Levee Database

HOME ADVANCED SEARCH DASHBOARD MAP MORE

SIGN IN

Wellsville, Genesee River, Left Bank

Location Wellsville, Allegany County, New York USACE Districts Buffalo FEMA Regions 2

Info Map DOWNLOAD DATA

SUMMARY SYSTEM SEGMENTS RISK FEMA - NFIP/FIRM FEATURES PROFILE ATTACHMENTS

Project Description

VIEW

This levee system was completed in 1958 to manage flood risk from Genesee River. It includes 5,000 feet of earthen levee, riprap and concrete revetment erosion protection, drop structures, and interior drainage features. It was also built in conjunction with the Genesee River – Wellsville – Right Bank levee system, Dyke Creek - Wellsville levee system, and channelization of the Genesee River. The Genesee River – Wellsville – Left Bank levee system was constructed by the United States Army Corps of Engineers in agreement with the New York Department of Environmental Conservation (NYSDEC) as the Local Sponsor. Once completed, it was turned-over to the NYSDEC for operations and maintenance (O&M) contingent on the requirements of an agreed-upon O&M Manual. The levee system is located on the left bank (looking downstream) of the Genesee River in Allegany County, New York. It extends 1.5 miles from the south Village of Wellsville limit to the dead end of N Brooklyn Ave. The shaded area in the graphic shows flooding that could occur due to levee failure or overtopping during a flood. This shaded area is referred to as the leveed area.

Levee Data:
Total Levee Length = 0.91 miles
Average Levee Height = 4 feet
Leveed Area = 133 acres

Performance: Since construction, the levee system has been moderately tested by water levels rising more than 1 foot (25%) up the levee 2 times, more than 2 feet (50%) up the levee once, and 3.5 feet (75%) up the levee once. United States Geological Survey (USGS) stream gage Station #04221000 near Wellsville indicated that the highest water levels on record were associated to a flood event in January 1996. The levee system, including the other levees and channelization,

Key Documents

VIEW

Levee System Summary

FEMA - NFIP/FIRM Information

VIEW

[Levee System Status on Effective FIRM](#)
Non Accredited

USACE Rehabilitation Status

VIEW

Status
Active

Latest Inspections

Segment Name	Inspection Date
Wellsville, Genesee River, Left Bank	09/24/2018

Risk Characteristics

VIEW

Levee Safety Action Classification Low

People at Risk 1,226

Structures at Risk 124

Property Value \$51.3M

Source: National Levee Database (NLD)

<https://levees.sec.usace.army.mil/#/levees/system/2405000024/summary>

Based on the condition of the system at the time of this publication, this levee

Basemap: Aerial

LEGEND

Levee Features

Leveed Area

Levee Systems

Levee System

500 m



FEMA

Genesee River Right Bank Levee System - NLD

← National Levee Database

HOME ADVANCED SEARCH DASHBOARD MAP MORE ↘ SIGN IN

Wellsville, Genesee River, Right Bank

Info Map DOWNLOAD DATA

Location Wellsville, Allegany County, New York

USACE Districts Buffalo

FEMA Regions 2

SUMMARY

SYSTEM

SEGMENTS

RISK

FEMA - NFIP/FIRM

FEATURES

PROFILE

ATTACHMENTS

Project Description

VIEW

This levee system was completed in 1958 to manage flood risk from Genesee River. It includes 1,980 feet of earthen levee and was built in conjunction with the Genesee River – Wellsville – Left Bank levee system, Dyke Creek - Wellsville levee system, and channelization of the Genesee River. The Genesee River – Wellsville – Right Bank levee system was constructed by the United States Army Corps of Engineers in agreement with the New York Department of Environmental Conservation (NYSDEC) as the Local Sponsor. Once completed, it was turned-over to the NYSDEC for operations and maintenance (O&M) contingent on the requirements of an agreed-upon O&M Manual. The levee system is located on the right bank (looking downstream) of the Genesee River in Allegany County, New York. The shaded area in the graphic shows flooding that could occur due to levee failure or overtopping during a flood. This shaded area is referred to as the leveed area.

Levee Data:
Total Levee Length = 0.38 miles
Average Levee Height = 3 feet
Leveed Area = 14.7 acres

Performance: Since construction, the levee system has not been loaded up to the base of the embankment. United States Geological Survey (USGS) stream gage Station #04221000 near Wellsville indicated that the highest water levels on record were associated to a flood event in January 1996. The levee system, including the other levees and channelization, has prevented greater than an estimated \$20,400,160 of flood damage.

Risk Characteristics

VIEW

Levee Safety Action Classification

Low

People at Risk 22

Structures at Risk 4

Property Value \$1.15M

Assessment Date 02/28/2018

Key Documents

VIEW

Levee System Summary

↓

FEMA - NFIP/FIRM Information

VIEW

Levee System Status on Effective FIRM

Non Accredited

USACE Rehabilitation Status

VIEW

Status

Active

Latest Inspections

Segment Name

Inspection Date

Wellsville, Genesee River, Right Bank

09/24/2018

Segments

VIEW

Wellsville, Genesee River, Right Bank

Basemap: Aerial


LEGEND

Levee Features

Leveed Area

Levee Systems

Levee System



Source: National Levee Database (NLD)

<https://levees.sec.usace.army.mil/#/levees/system/2405000025/summary>

The logo of the Federal Emergency Management Agency (FEMA), featuring an eagle with wings spread, perched on a shield, with the words "U.S. DEPARTMENT OF HOMELAND SECURITY" and "FEDERAL EMERGENCY MANAGEMENT AGENCY" around it.

FEMA

Dyke Creek Left Bank Levee System - NLD

← National Levee Database

HOME ADVANCED SEARCH DASHBOARD MAP MORE SIGN

Wellsville, Dyke Creek, Left Bank

Info Map DOWNLOAD DATA

Location Wellsville, Allegany County, New York

USACE Districts Buffalo

FEMA Regions 2

SUMMARY

SYSTEM

SEGMENTS

RISK

FEMA - NFIP/FIRM

FEATURES

PROFILE

ATTACHMENTS

Project Description

VIEW

This levee system was completed in 1958 to manage flood risk from Dyke Creek. It includes 600 feet of earthen levee, a deepened and widened channel, interior drainage, and a drop structure at Miller Street. It was also built in conjunction with the Genesee River – Wellsville – Left Bank levee system, Genesee River – Wellsville – Right Bank levee system, and channelization of the Genesee River. The Dyke Creek – Wellsville levee system was constructed by the United States Army Corps of Engineers in agreement with the New York Department of Environmental Conservation (NYSDEC) as the Local Sponsor. Once completed, it was turned-over to the NYSDEC for operations and maintenance (O&M) contingent on the requirements of an agreed-upon O&M Manual. The levee system is located on the left bank (looking downstream) of Dyke Creek in Allegany County, New York. The shaded area in the graphic shows flooding that could occur due to levee failure or overtopping during a flood. This shaded area is referred to as the leveed area.

Levee Data:

Total Levee Length = 0.18 miles

Average Levee Height = 3.5 feet

Leveed Area = 17.3 acres

Performance:

Since construction, the levee system has been loaded above 75% of its height but has never been fully loaded. United States Geological Survey (USGS) stream gage Station #04221000 near Wellsville indicated that the highest water levels on record were associated to a flood event in January 1996 when water levels were 2.8 feet (80%) up the levee. The levee system, including the two Genesee River levees and channelization, has prevented greater than an estimated \$39,488,100 of flood damages since completion.

Risk Characteristics

VIEW

Levee Safety Action Classification

Low

People at Risk 109

Structures at Risk 35

Property Value \$4.25M

Assessment Date 02/28/2018

Source: National Levee Database (NLD)

<https://levees.sec.usace.army.mil/#/levees/system/2405000030/summary>

Key Documents

VIEW

Levee System Summary

↓

FEMA - NFIP/FIRM Information

VIEW

Levee System Status on Effective FIRM

Non Accredited

USACE Rehabilitation Status

VIEW

Status

Active

Latest Inspections

Segment Name

Inspection Date

Wellsville, Dyke Creek, Left Bank

09/24/2018

Segments

VIEW

Wellsville, Dyke Creek, Left Bank

Basemap: Aerial


LEGEND

Levee Features

Leveed Area

Levee Systems

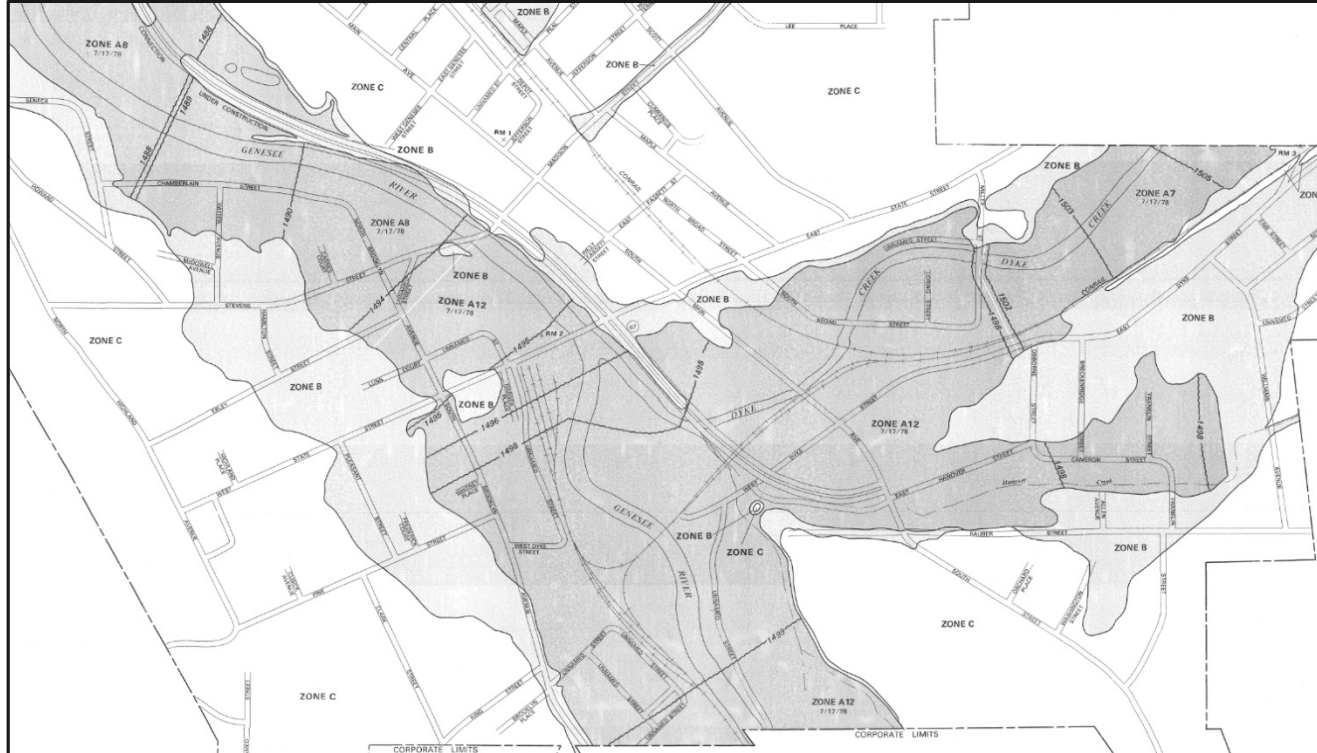
Levee System





FEMA

Effective Flood Insurance Rate Maps (FIRMs)



Village of Wellsville
Community-Panel: 360036 0001 B
Effective Date: July 17, 1978



Town of Wellsville
Community-Panel: 360035 0020 B
Effective Date: March 18, 1985



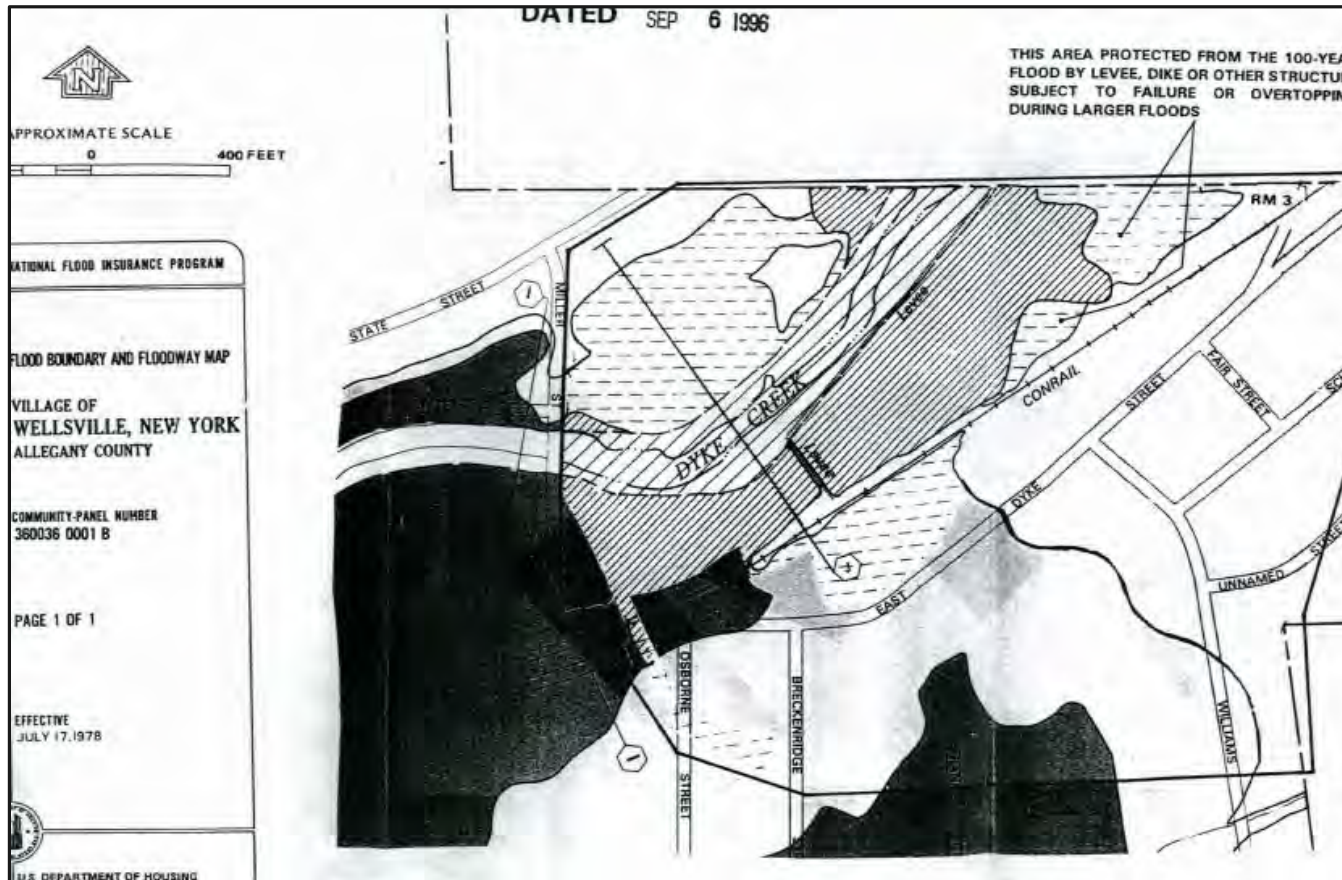
FEMA

Dyke Creek Flood Control Project

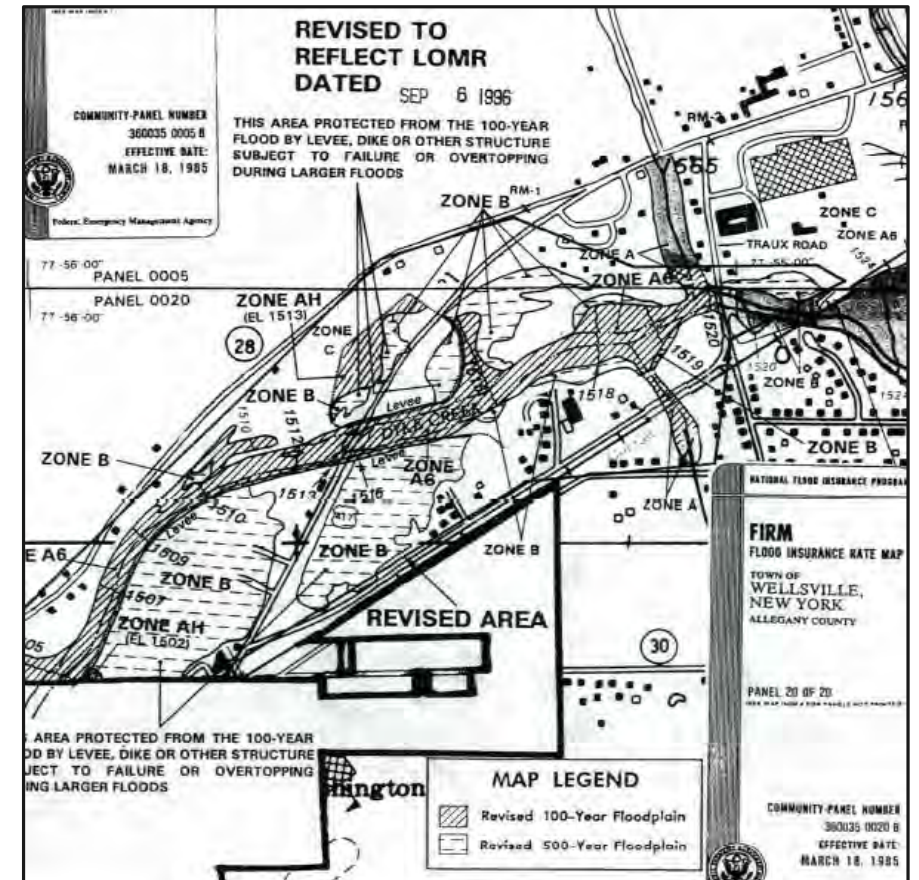


FEMA

Effective Letter of Map Revision (LOMR)



Village of Wellsville
LOMR Case No: 96-02-007P
Effective Date: September 6, 1996



Town of Wellsville
LOMR Case No: 96-02-007P
Effective Date: September 6, 1996



FEMA

Levee Flood Hazard Identification



FEMA

How Levee Systems Are Categorized

Accredited Levee System:

1. Certified Levee documentation* has been provided that demonstrates all requirements of 44 CFR §65.10 have been met.
2. Levee impacted area shown on FIRM(s) as reducing flood hazard from the one-percent-annual-chance flood.

Non-Accredited Levee System:

1. Certified Levee documentation* that demonstrates all requirements of 44 CFR §65.10 have been met has not been provided.
2. Levee impacted areas shown on FIRM(s) as not reducing flood hazard from the one-percent-annual-chance flood.

* Certified levee documentation: As-built plans and additional data must be submitted to support that a given levee system complies with the structural requirements. This data must be certified by a registered professional engineer or a Federal agency with responsibility for levee design.



FEMA

44 CFR §65.10

Mapping Of Accredited Levee Systems

- 65.10(a) – General Requirements
- 65.10(b) – Design Requirements
- 65.10(c) – Operations Plans
- 65.10(d) – Maintenance Plans
- 65.10(e) – Certification Requirements



FEMA

65.10(b)

Design Requirements

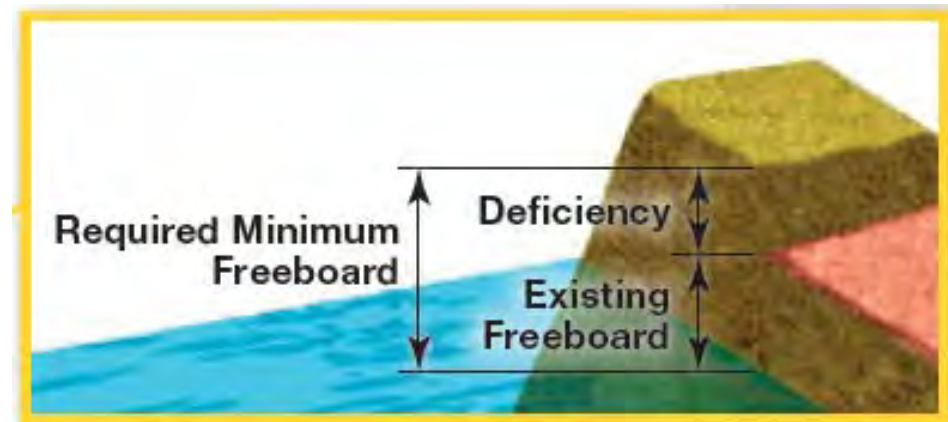
- 65.10(b)(1) – Freeboard
- 65.10(b)(2) – Closures
- 65.10(b)(3) – Embankment Protection
- 65.10(b)(4) – Embankment and foundation stability
- 65.10(b)(5) – Settlement Analysis
- 65.10(b)(6) – Interior Drainage
- 65.10(b)(7) – Other Design Criteria



FEMA

What is Freeboard?

- For levees and purposes of the NFIP, **freeboard** is the vertical distance between the **levee crest** and the **water level** that can be expected during the 1-percent-annual-chance flood.
- Freeboard is a **factor of safety** that tends to **compensate for the many uncertain factors** that could contribute to flood heights greater than the 1-percent-annual-chance flood (for NFIP) and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed.



FEMA

FEMA Recognizes Non-Accredited Levee Systems Do Impact Flood Risk

Developed Analysis and Mapping Procedures for Non-Accredited Levees

Approach Document
Finalized July 2013

Operation Guidance
Finalized Sept. 2013



Analysis and Mapping Procedures for Non-Accredited Levee Systems

New Approach
July 2013

RiskMAP
Increasing Resilience Together

www.fema.gov/plan/prevent/fhm/rm_main.ahtm • 1-877-FEMA MAP

Operating Guidance 12-13 Non-Accredited Levee Analysis and Mapping Guidance

September 2013



FEMA

Analysis And Mapping Procedures For Non-Accredited Levees

Includes:

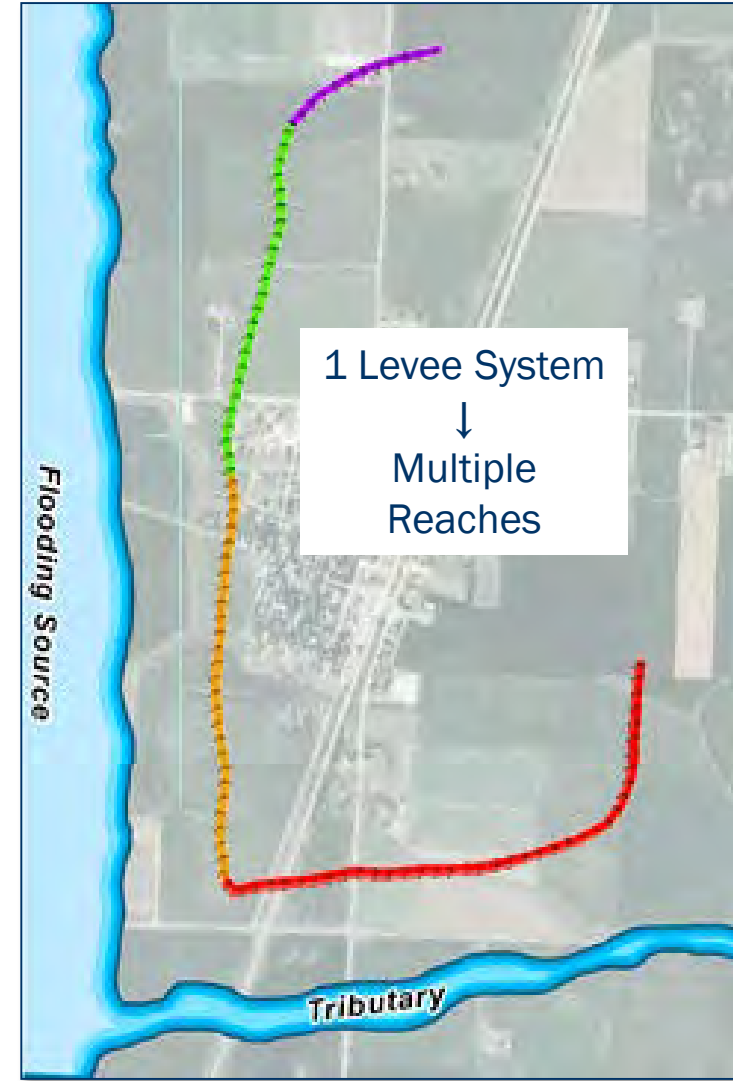
- Interactive stakeholder engagement
- A suite of analysis and mapping procedures to review the flood hazard associated with levee systems.
- Allows for levee system to be analyzed as “**Reaches**” based on the attributes of a given segment.



FEMA

What Is A Levee Reach?

- A levee reach is a segment of a levee system, generally with similar characteristics, where a single technical procedure may be applied.
- Used to identify Special Flood Hazard Area (SFHA) within the levee impacted area. SFHA is that area inundated during a one-percent-annual-exceedance flood.



FEMA

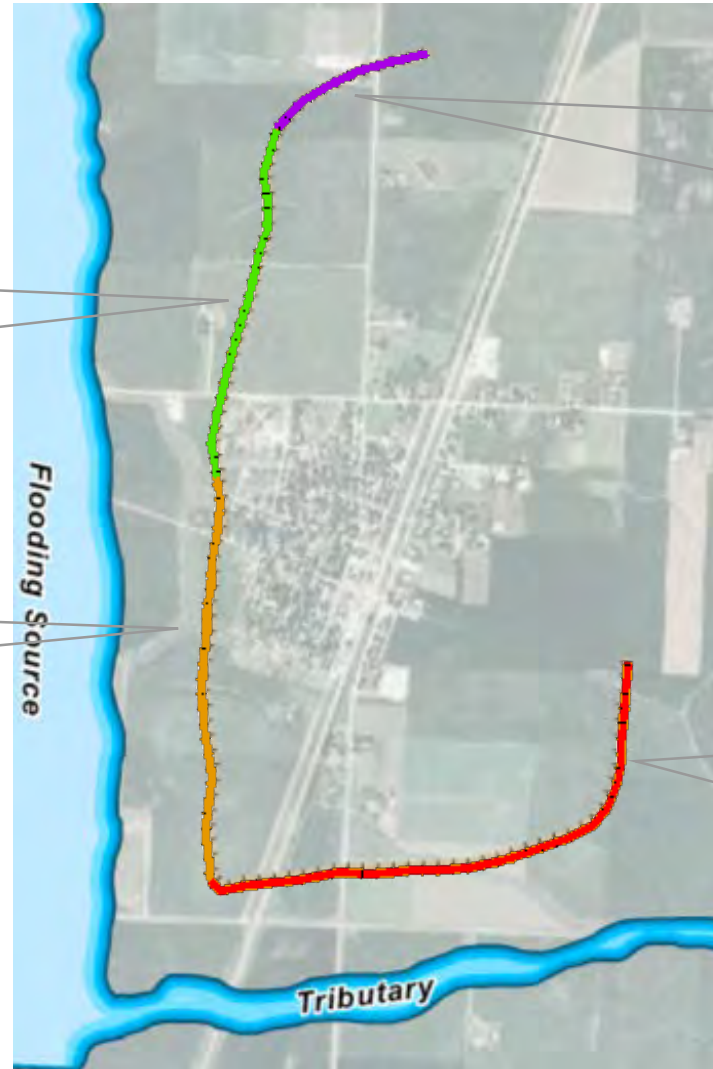
Benefits Of Applying Procedures To Individual Reaches

**Structural-Based
Inundation Procedure**
Overtops but not armored

Sound Reach Procedure
Has required freeboard

Overtopping Procedure
Barely overtops & is
armored: community
chooses to do extra
evaluation for overtopping

Natural Valley Procedure
Don't know anything about
Not maintained
No owner
No structural analysis

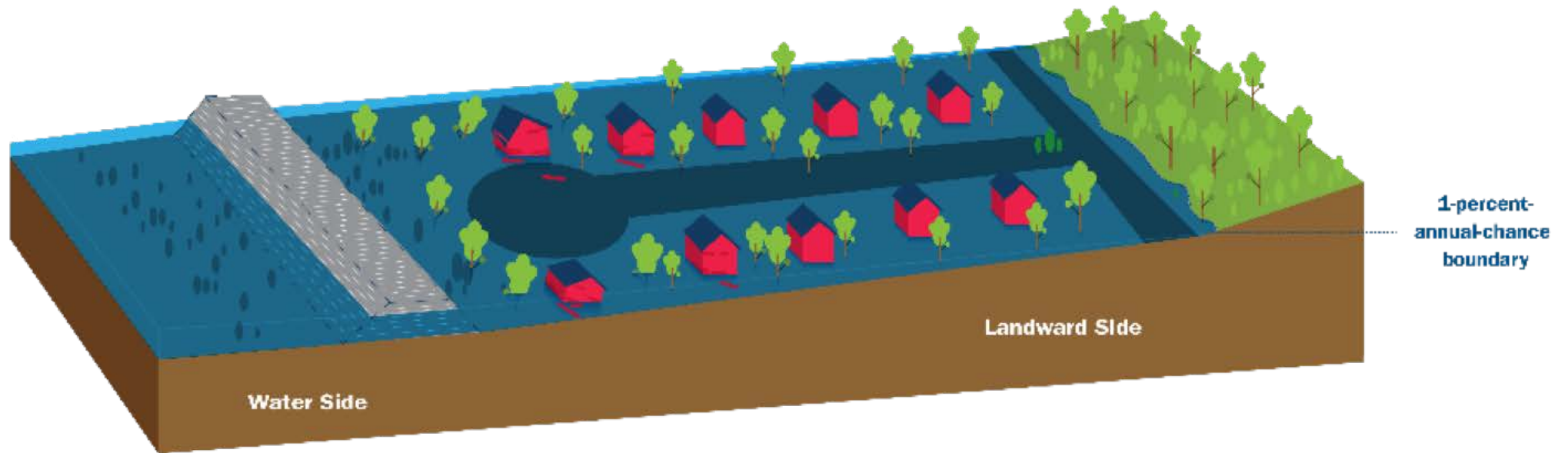


FEMA

Natural Valley Procedure

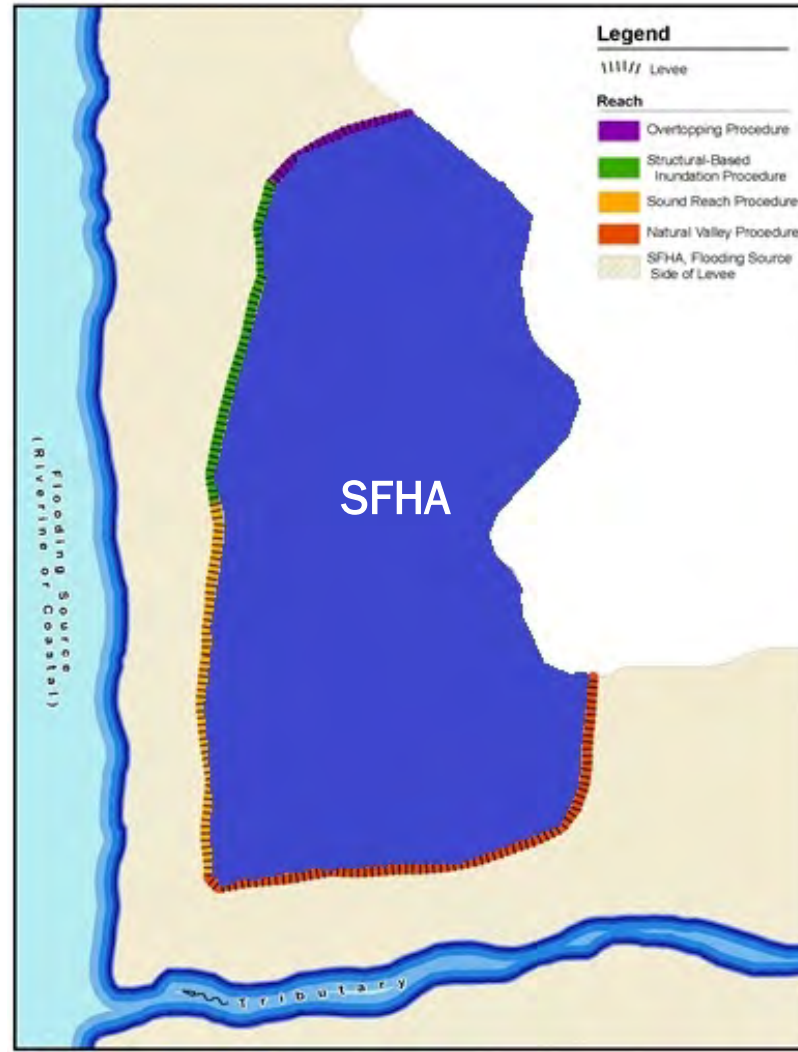
This analysis identifies the landside flood risk as though the levee does not impact the flood elevation.

Application: Levee does not meet
44 CFR §65.10



FEMA

Natural Valley Procedure

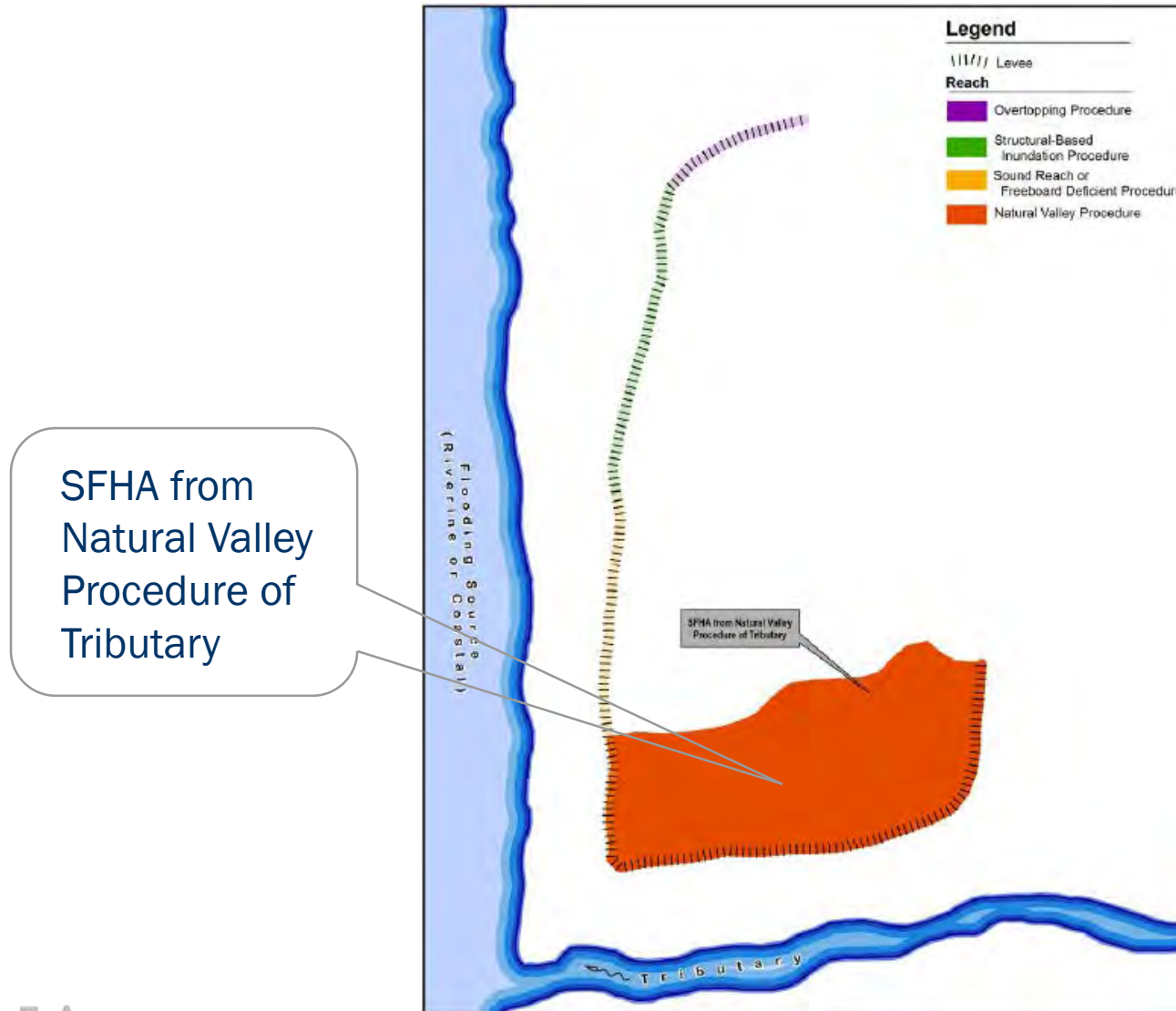


This Natural Valley floodplain may be designated as Zone D if other reach analysis procedures are applied.



FEMA

Natural Valley Procedure

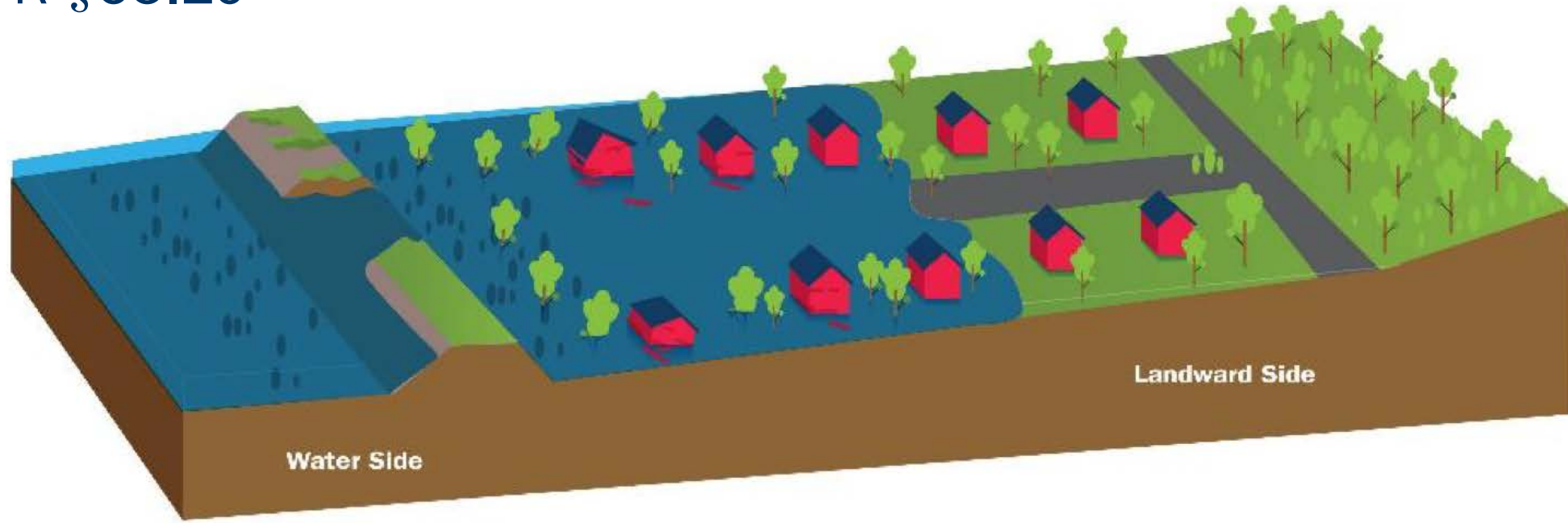


FEMA

Structural-Based Inundation Procedure

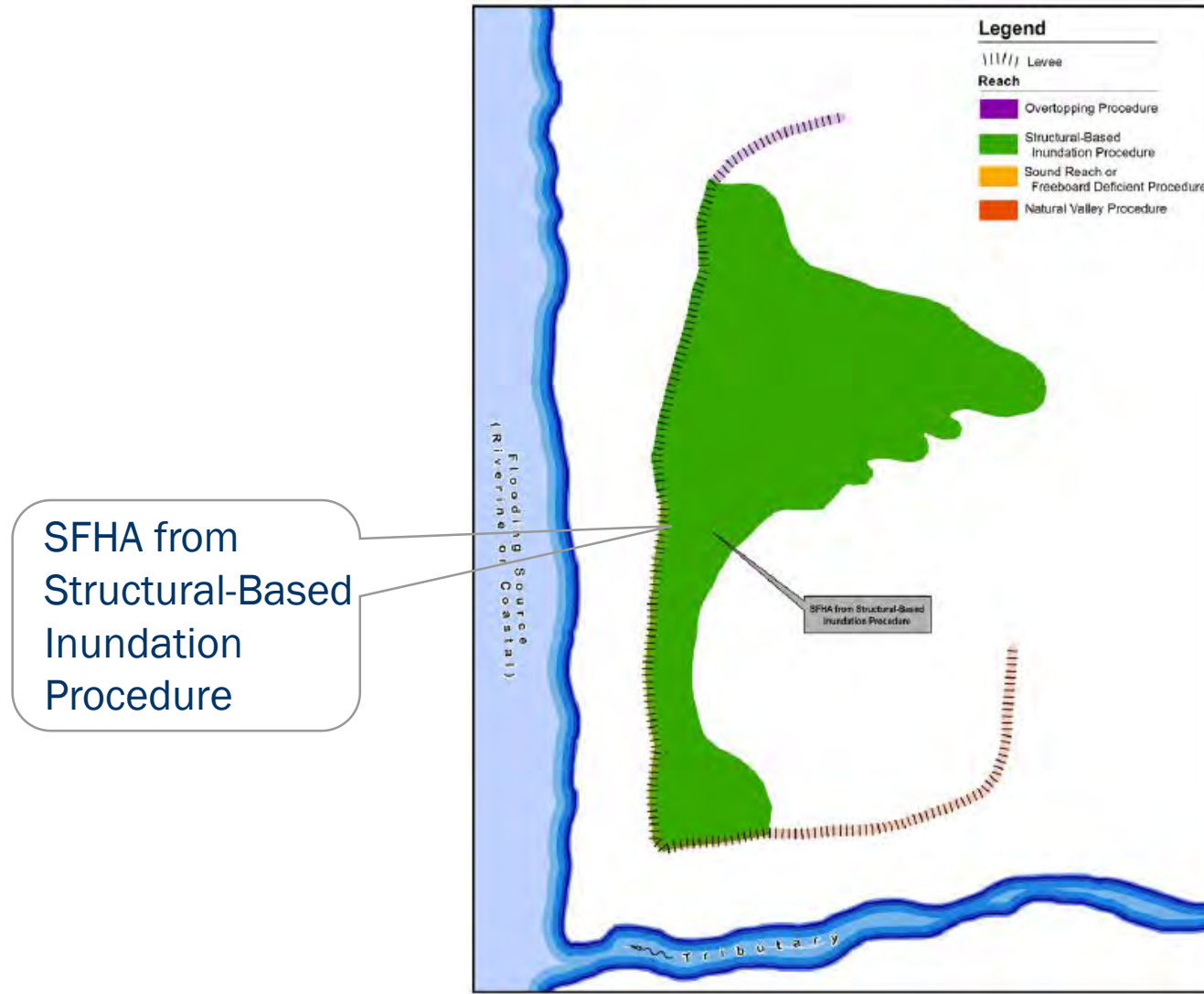
This analysis identifies the landside flood risk by estimate of hypothetical breach analyses.

Application: Levee does not meet
44 CFR §65.10



FEMA

Structural-Based Inundation Procedure



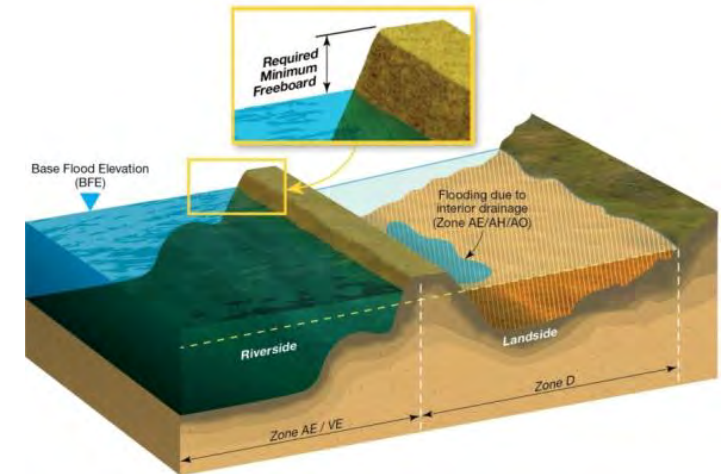
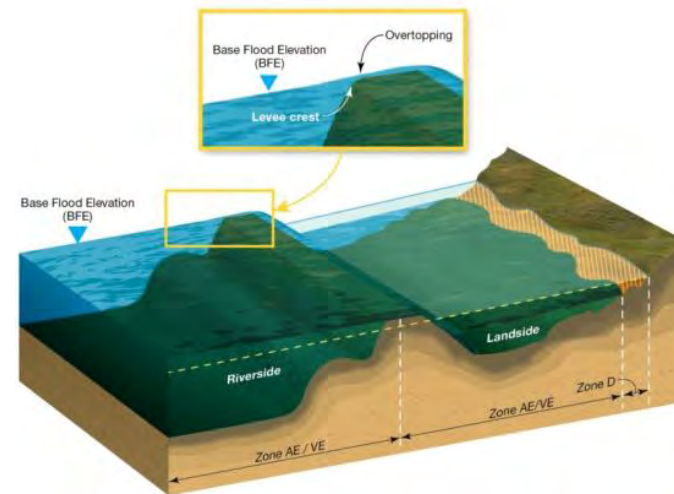
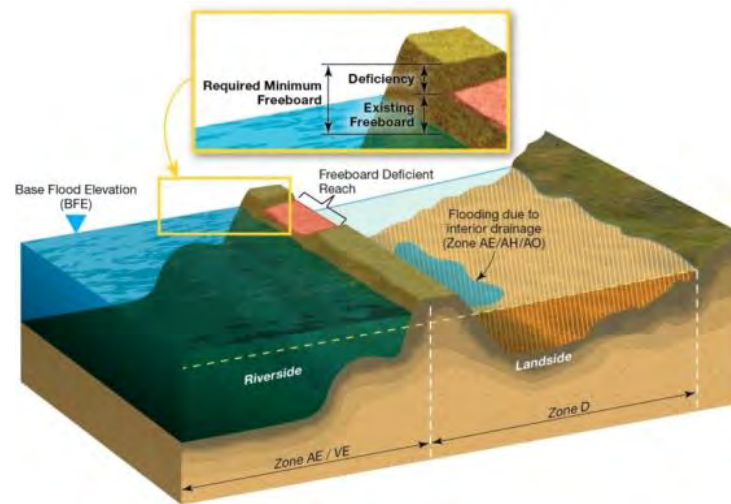
SFHA from
Structural-Based
Inundation
Procedure



FEMA

Other Potential Reach Analysis Procedures

- Freeboard Deficient Procedure
- Overtopping Procedure
- Sound Reach Procedure



FEMA

Zone D

- Defined as “undetermined, but possible, flood hazards”
- No federal mandatory purchase requirement
- Insurance rates are similar to approximate Zone A
- Minimal NFIP-required floodplain management, but possible to use for enhanced floodplain management purposes



FEMA

Mapping Path Forward is Based On Data

	Reach Procedures				
	Sound **	Freeboard Deficient **	Overtopping **	Structural-Based Inundation *	Natural Valley *
Elevation Information for the Levee Crest and Toe	✓	✓	✓	✓	
BFE + Freeboard Less than Levee Crest	✓				
BFE Less than Levee Crest	✓	✓			
Operations and Maintenance Plan	✓	✓	✓	Recommended	
Structural Design Requirements	✓	✓	✓		
Inspection Reports	✓	✓	✓	Recommended	
Evaluation of Overtopping Erosion Potential			✓		

✓ - Required

* - No cost to community

** - Potential additional cost to community



FEMA

Path Forward & Next Steps



FEMA

Local Levee Partnership Team (LLPT)

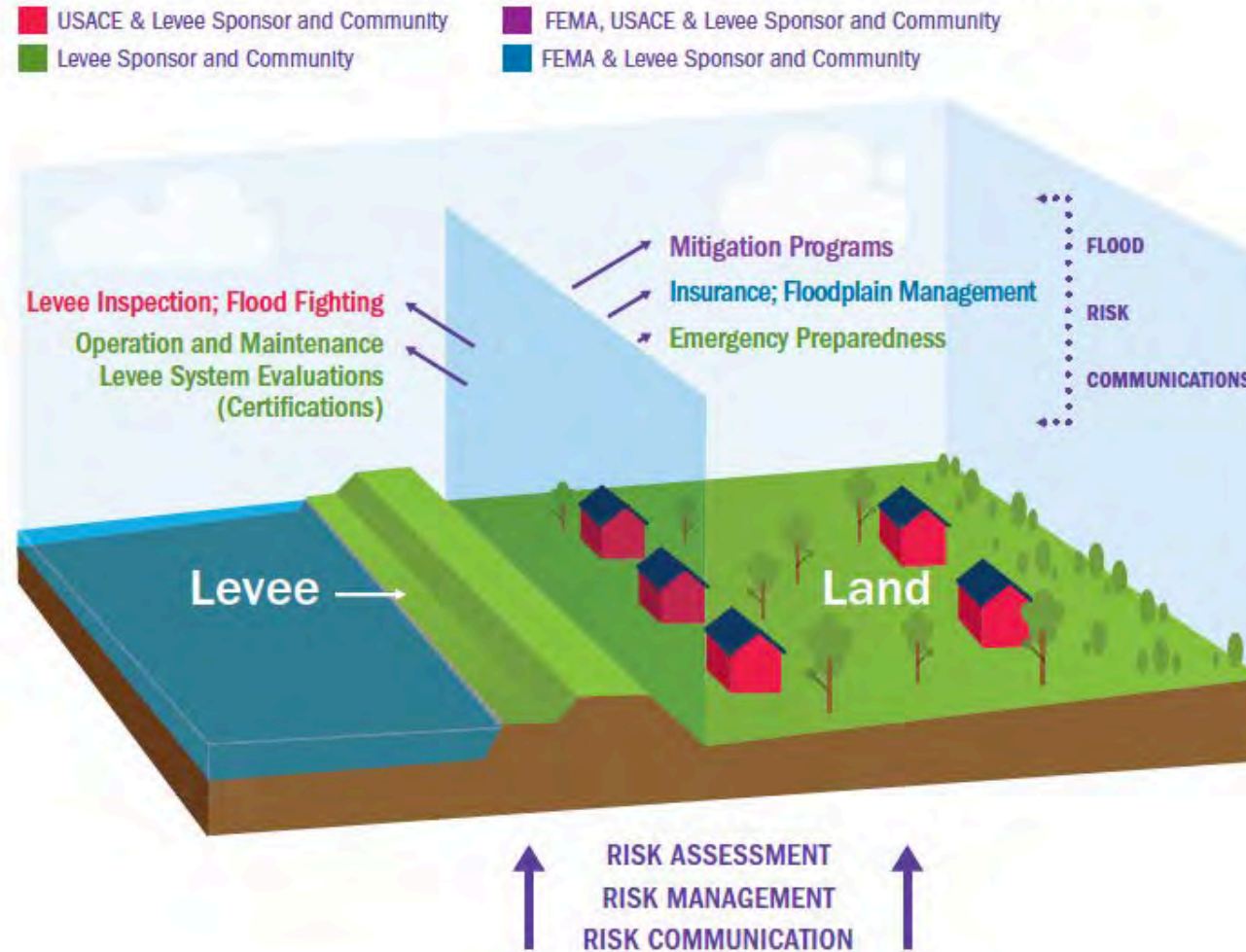
Group of stakeholders participating in the discussion of levee flood risk and providing feedback and local levee data to FEMA relating to the levee system.



FEMA

Shared Levee Responsibilities

SHARED RESPONSIBILITIES & FLOOD RISK COMMUNICATIONS



FEMA

Levee Analysis And Mapping Procedure

1 LLPT 1: STAKEHOLDER COORDINATION AND DATA COLLECTION MEETING

Identify Local Levee Partnership Team (LLPT) members with FEMA and begin data collection



2 INITIAL LEVEE DATA ANALYSIS

FEMA performs the initial levee data analysis based on collected information from the LLPT



The reach analysis procedures that will be reviewed include the following:

- Natural Valley
- Freeboard Deficient
- Overtopping
- Structural-Based Inundation
- Sound Reach

3 LLPT 2: MEETING TO REVIEW INITIAL DATA ANALYSIS

Technical review of initial levee data analysis results with LLPT members



4 LLPT 3: REVIEW LEVEE ANALYSIS AND MAPPING PLAN

Discuss the draft levee analysis and mapping plan and ways to convey risk and mitigation information to citizens



FEMA

Watershed Data, Stream Data & Documentation Requested

- Survey Information and/or As-Built Plans
 - Channel improvement projects
 - Bridge/culvert crossings
 - Utility crossings
 - Stream cross-sections
- Stream Gage Data
- Surveyed High Water Marks
- Information Regarding On-going or Future Projects



FEMA

Levee System Data & Documentation Requested

Identify other community information, resources, developments in the community, and current mitigation projects currently underway

- Elevation Information for the Levee System (Toe & Crest)
- Design Water Surface Elevation
- Structural Design Information
- Geotechnical Evaluation
- Interior Drainage Analysis
- Operation and Maintenance Plans
- As-built Plans
- Levee Inspection Reports



FEMA

LLPT Timeline:

Initial Data Collection and Analyses

April 2019 –
Summer 2019

LLPT Touchpoint Calls

June 2019 –
Spring 2020

LLPT 3 Meeting ~ Winter 2019

**Future Flood Hazard
& Mapping**
TBD

LLPT 1 Meeting

Today,
June 27, 2019

LLPT 2 Meeting ~ Fall 2019

Levee Analysis and Mapping Plan ~ Spring 2020



FEMA

QUESTIONS?

Contact:

Alan Springett, Project Monitor

FEMA Region II

Phone: 212-680-8557

E-mail: alan.springett@fema.dhs.gov

Stephanie Nurre, Project Engineer

STARR II

Phone: 312-262-2284

E-mail: stephanie.nurre@stantec.com



FEMA

Contacts

	Title	Employee	Phone Number
FEMA	Risk Analysis –Engineers	Alan Springett, Project Monitor shudipto.rahman@fema.dhs.gov	(212) 680-8557
		Shudipto Rahman, Alternative Project Monitor shudipto.rahman@fema.dhs.gov	(212) 680-8825
Production and Tech. Services	Project Engineers, Floodplain Analysis and Mapping – STARR II	Stephanie Nurre stephanie.nurre@stantec.com	(312) 262-2284
		Curtis Smith curtis.smith@stantec.com	(646) 842-8239
Outreach	Community Engagement and Risk Communication (CERC) – Resilience Action Partners	Matt Kroneberger matt.kroneberger@ogilvy.com	(212) 237-6373



FEMA



FEMA

Thank You

Challenges, Innovation, The way forward

Allegany County, NY

LLPT 2 Meeting Notes

ATTENDEES

William Whitfield

Title: Director of Public Works,
Village of Wellsville
Phone: 585-596-1710
Email:
bill_whitfield@wellsvillenyny.com

Dean Arnold

Title: Highway Superintendent,
Town of Wellsville
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Email:
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Jo Fenske, CFM

Title: Code Enforcement,
Village of Wellsville
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Email:
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Bob Mitchell

Title: Mayor,
Village of Bolivar
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Email:
boltwnclerk@yahoo.com
(Email Care of Town/Village Clerk)

Wayne Stonemetz

Title: Director of Public Works,
Village of Bolivar
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Email:
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(Email Care of Town/Village Clerk)

Jeff Luckey

Title: Director of Emergency
Management & Fire,
Allegany County
Phone: 585-268-7658
Email:
luckeyj@alleganyco.com

TOWN & VILLAGE OF BOLIVAR, TOWN & VILLAGE OF WELLSVILLE, NEW YORK

DATE: WEDNESDAY, FEBRUARY 5, 2020 **TIME:** 1:00 PM – 3:00PM

LOCATION: Wellsville Village Hall Boardroom,
23 N. Main Street Wellsville, NY 14895

Action Item	Owner
1. U.S. Department of Agriculture Natural Resources Conservation Services (NRCS) and U.S. Army Corps of Engineers (USACE) Buffalo District to coordinate on information sharing.	USACE Buffalo District, NRCS
2. LLPT Members to continue review & upload data to file transfer protocol (FTP) site	Town & Village of Bolivar, Town & Village of Wellsville, USACE Buffalo & Pittsburgh District

FTP Site Information

Wellsville

Browser link:

<https://projsftp.stantec.com>

Login name: WELLSVILLE1710

Password: 5967984

Bolivar

Browser link:

<https://projsftp.stantec.com>

Login name: BOLIVAR1711

Password: 8134900



Allegany County, NY

LLPT 2 Meeting Notes

ATTENDEES *Continued*

Bonnie VanHousen

Title: Emergency Services Assistant,
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Email:
vanhoub@alleganyco.com

Kier Dirlam

Title: County Planning Director
Phone: 585-268-7472
Email:
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Ted Myers

Title: Regional Flood Control Engineer
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Kerrie O'Keeffe

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Mary Binder

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Brad Wenskoski

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Specialist, NYSDEC
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AGENDA

Wednesday, February 5, 2020

1:00 P.M.

Welcome and Introductions

1:10-2:50 P.M.

Presentation and Dialogue

2:50-3:00 P.M.

Next Steps, Questions, Review

MEETING OVERVIEW

The Allegany County Local Levee Partnership Team (LLPT) formed in June 2019 was reconvened to discuss estimated flood risk for levee systems in the Town and Village of Bolivar and Town and Village of Wellsville for the LLPT 2 Meeting on February 5, 2020.

Additional stakeholders at the LLPT 2 meeting included Village of Bolivar Mayor Bob Mitchell, Village of Bolivar Department of Public Works Director Wayne Stonemetz, and David Walowsky representing the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) which coordinated construction for the Dyke Creek Right Bank and Left Bank Levee Systems. A full list of meeting attendees for each LLPT meeting can be found in meeting notes under "Attendees" and will be compiled for all participants throughout the LLPT process in the Levee Analysis and Mapping Plan report following the third LLPT (LLPT 3) meeting.

A critical component of the LLPT 2 meeting was reviewing the local knowledge and data collected since the first meeting of the LLPT and discussing the estimated flood risk from the initial data analysis. Data shared previously by the U.S. Army Corps of Engineers (USACE) Buffalo District, USACE Pittsburgh District, and the New York State Department of Environmental Conservation (NYSDEC) informed flood risk modeling presented during the LLPT 2 meeting. Discussion during the meeting catalyzed flood risk information sharing by attendees and connected key stakeholders across the County.

Meeting discussion focused on the first pass results of the initial data analysis results. FEMA Project Monitor Alan Springett and STARR II Project Manager Stephanie Nurre shared how the approximate modeled flood risk in...

Notes Continue...

Allegany County, NY

LLPT 2 Meeting Notes

ATTENDEES *Continued*

Steve Len, P.E.

Title: Section Chief, Flood Controls
Structures Section, NYSDEC
Phone: 518-402-8142
Email:
stephen.len@dec.ny.gov

Thanuja Singh

Title: Assistant Engineer, Flood
Controls Section, NYSDEC
Phone: 518-402-8286
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Robert Remmers

Title: Chief, Operations and Technical
Support Section
U.S. Army Corps of Engineers,
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Phone: 716-879-4277
Email:
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Laura Ortiz

Title: U.S. Army Corps of Engineers,
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Jason Doktor

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Stephen Hutzler

Title: U.S. Army Corps of Engineers,
Pittsburgh District
Phone: 412-395-7165
Email:
stephen.r.hutzler@usace.army.mil

...leveed areas may be applied to inform hazard mitigation and emergency plans, inform local development decisions, and provide communities with more specific flood risk information. The initial data analysis will be used to inform future floodplain mapping and will not supersede the effective Flood Insurance Study (FIS) report or Flood Insurance Rate Maps (FIRMs) for the Town and Village of Bolivar and the Town and Village of Wellsville.

MEETING DISCUSSION

QUESTION

Ted Meyers, NYSDEC Region 9:

Will you be providing hydraulics and any model data as a result of the LLPT?
Any plans to do any ground truth surveys?

Response:

Alan Springett, FEMA Project Monitor:

All data available as part of this effort will be included in the Levee Analysis and Mapping Plan provided at the end of this phase of outreach.
A ground truth survey is not planned.

QUESTION

Kier Dirlam, Director of Planning, Allegany County:

Does floodplain modelling incorporate storm water collection?

Response:

Alan Springett, FEMA Project Monitor:

Newly modeled flood risk is going to start looking at storm water, however, for the purposes of the initial activities of the LLPT, the data analysis will approximate only riverine flooding.

QUESTION

Bill Whitfield, Director of Public Works, Village of Wellsville:

Does accrediting levees mean they would need to be re-accredited, do we have to recertify?

Response:

Alan Springett, FEMA Project Monitor:

Levee systems, including those in Wellsville considered USACE systems are considered non-accredited as FEMA does not have certified engineering data to show that they...

Notes Continue...

Allegany County, NY

LLPT 2 Meeting Notes

ATTENDEES *Continued*

David Walowsky

Title: State Design Engineer, Dam
Watch Program Administrator,
U.S. Department of Agriculture –
Natural Resources Conservation
Service (USDA NRCS)
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david.walowsky@usda.gov

Alan Springett

Title: Senior Engineer,
Risk Assessment Lead,
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Stephanie Nurre

Title: Senior Mitigation Planner,
Project Manager
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STARR II / RSC
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Nick Mueller

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Matt Kroneberger

CERC - Outreach Support
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Email:
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...meet the minimum requirements of 44 CFR 65.10 to be recognized on the FIRM as reducing the flood hazards posed by a 1-percent-annual-chance flood.

Accredited levee systems need to be re-evaluated if the stream is restudied or if information is received by FEMA that shows the levee system no longer meets the minimum requirements outlined in 44 CFR Section 65.10. The Village of Nichols was able to have their levee system certified using New York Rising grant funding. That levee system is now accredited. The Mayor of the Village of Nichols presented their accreditation story via webinar, of which notes are available upon request.

QUESTION

Kier Dirlam, Director of Planning, Allegany County:

Why weren't the Dyke Creek levees designed for the 1-percent-annual chance flood elevation originally?

Response:

Alan Springett, FEMA Project Monitor:

FEMA, USACE, and NRCS use different design criteria. Levees that are not designed to the 1-percent-annual-chance flood elevation can, however, provide flood risk reduction to the leveed area.

Dave Walowsky, USDA NRCS:

NRCS does use its own design criteria.

QUESTION

Mary Binder, NYSDEC Region 9:

In Nichols, NY and Amsterdam, NY, levees in those communities have been accredited. How were those levees able to be accredited?

Response:

Alan Springett, FEMA Project Monitor:

In those localities, the levee systems met accreditation requirements including meeting 3-feet or more of freeboard.

Those communities, in partnership with New York State, were able to seek and receive geotechnical reviews in compliance with 44 CFR 65.10 requirements. There was a cost associated to the communities to acquire that geotechnical review. We can share that information.

Notes Continue...

Allegany County, NY

LLPT 2 Meeting Notes

Stephanie Nurre, STARR II Project Manager:

The NRCS Wellsville levees do show reduced flood risk on the effective firm, however, the Natural Valley Procedure was performed for all levee systems based on current available data. Further, on the current effective FIRM, the Dyke Creek Left Bank Levee system ties into a railroad. For levee systems that tie-into a roadway or railroad, the road or railroad would also need to meet the minimum requirements of 44 CFR 65.10.

QUESTION

Bill Whitfield, Director of Public Works, Village of Wellsville:

We would like the federal government to assist us not just share risk information. What is the end game here and how does this help Wellsville and does this shift liability?

Kier Dirlam, Director of Planning, Allegany County:

Is the intent of this process is to advance regulatory floodplain mapping?

Response:

Trevor Cone, FEMA Region II Regional Support Center:

The key purpose for the LLPT is to provide communities with the best flood hazard information to make the best and most clear decisions about planning in advance of future regulatory floodplain mapping.

The Levee Analysis and Mapping Procedures (LAMP) and LLPT process, along with Base Level Engineering (BLE) on which modeling is based is to give communities this information in as specific a form as possible.

This is a first view of what changes could be coming to future regulatory floodplain mapping. This process is to give communities a long lead time on how to update local hazard mitigation plans and how to prepare for future floodplain mapping.

QUESTION

Jeff Lucky, Director of Emergency Management, Allegany County:

My job is to tell people to evacuate in the case of an emergency.

I don't know how to tie levee overflow to the current waterflow from heavy storm events. We only have one storm gage in Wellsville. My downstream gage is in Genesee Falls outside of Allegany County.

How much do gages cost and how could we get more?

Notes Continue...

Allegany County, NY

LLPT 2 Meeting Notes

Response:

Alan Springett, FEMA Project Monitor:

NOAA (National Oceanic and Atmospheric Administration) could better coordinate this information. As an Emergency Manager, NOAA can give better ideas of flash flooding from weather, but it is understood that more data can be even more useful.

Ted Myers, NYSDEC Region 9:

USGS (U.S. Geological Survey) can coordinate storm gages as well. Gages can cost an estimated \$40,000.

Bill Whitfield, Director of Public Works, Village of Wellsville:

The Genesee River and Dyke Creek don't react the same to storms. Sometimes both get higher than NOAA predictions. The only way we can protect our people is to sit and measure the Genesee and Dyke Creek manually.

Alan Springett, FEMA Project Monitor:

Each stream depending on the size of the watershed is affected differently.

MEETING CONCLUSION

Alan Springett closed the meeting by thanking all attendees for their participation and requested that they reach out to him if they have any questions.

Allegany County, NY Village of Bolivar and Town of Bolivar Village of Wellsville and Town of Wellsville Levee Flood Hazard Identification

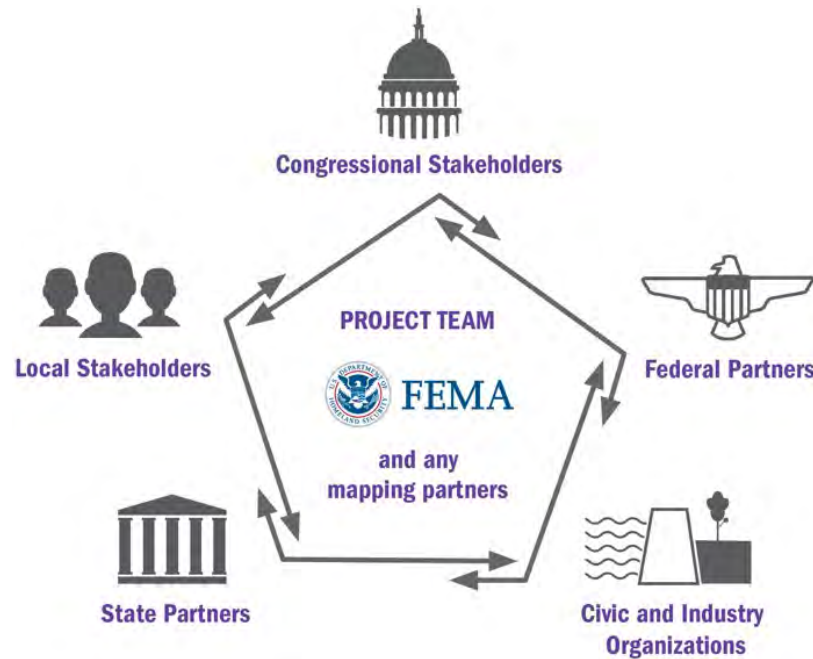
Local Levee Partnership Team (LLPT) Meeting 2
February 5, 2020



FEMA

The Focus is on Flood Risk

The Federal Emergency Management Agency (FEMA) works with Federal and State partners, local communities and other stakeholders to assess and communicate flood risks in areas impacted by non-accredited levees.



FEMA

Today's Agenda

1	2	3	4
Meeting Recap and Status Updates	Review Levee Flood Hazard	Results of Initial Data Analysis	Next Steps
			



FEMA

LLPT 1 - First Meeting Recap

- Initial Stakeholder Engagement Meeting – June 27, 2019
 - Recap of community issues/questions
- Reach Procedures
 - Natural Valley
 - Structural-Based Inundation
 - Freeboard Deficient
 - Overtopping
 - Sound Reach



FEMA

Data Collection - Village and Town of Bolivar

- Data Collection
 - Base Level Engineering Study - Upper Allegheny River Watershed, STARR II, FEMA
 - 2020 Village of Bolivar Flood Damage Reduction Project Emergency Action Plan, Village of Bolivar
 - Sharing agreement between USACE Pittsburgh District and FEMA Region 2
- Updates from communities?



FEMA

Data Collection – Village and Town of Wellsville

- Data Collection
 - Base Level Engineering Study - Upper Genesee River Watershed, STARR II, FEMA
 - 1956 As-built Plans (Local Flood Protection at Wellsville, NY), USACE Buffalo Dist.
 - 1973 As-built Plans (Local Flood Protection Wellsville, NY), USACE Buffalo Dist.
 - 1976 As-built Plans (Local Flood Protection at Wellsville, NY), USACE Buffalo Dist.
 - 1994 Plan View Drawing (Genesee River Wellsville, NY), USACE Buffalo Dist.
 - 2000 Operations and Maintenance Manual, USACE Buffalo Dist.
 - 2010 Periodic Inspection Report, USACE Buffalo Dist.
 - FY13, FY15 – FY19 Routine Inspection Reports
 - 1992 As-built Plans (Dyke Creek Watershed Project), NRCS
 - Undated Dyke Creek Watershed Design Report, NRCS



FEMA

Allegany County Mapping Status Update

- At this time, FEMA has not scheduled a remapping initiative for Allegany County; however, an initiative is anticipated to begin within the next 5 years.
- Communities will have several years to plan and act before updated Flood Insurance Rate Maps (FIRMs) are produced. For now, the 1970s and 1980s-era FIRMs remain in effect for flood insurance mandatory purchase and flood insurance rating purposes.
- Following the November 2019 FEMA Scoping of Priorities meeting held in Friendship, NY, non-regulatory Base Level Engineering and Scoping of Priorities results are being finalized and will be made available to communities in Winter/Spring 2020.



FEMA

Allegany County Mapping Status Update

- For future mapping projects, FEMA will work to incorporate new findings from this levee engagement process, which may contribute valuable information to improve future Allegany County Flood Studies.
- FEMA will continue to keep each community aware of next steps as we work together to build each community's flood and disaster resilience.



FEMA

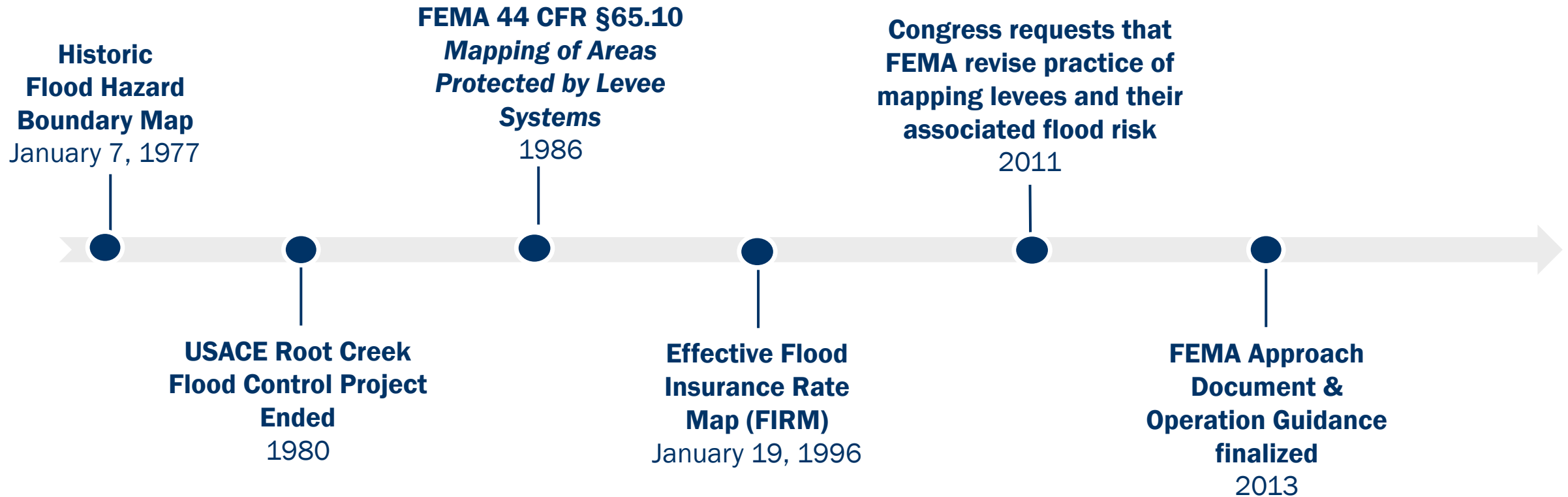
Review Levee Flood Hazard *Village and Town of Bolivar*



FEMA

Right Bank Root Creek Levee System

Village and Town of Bolivar, NY



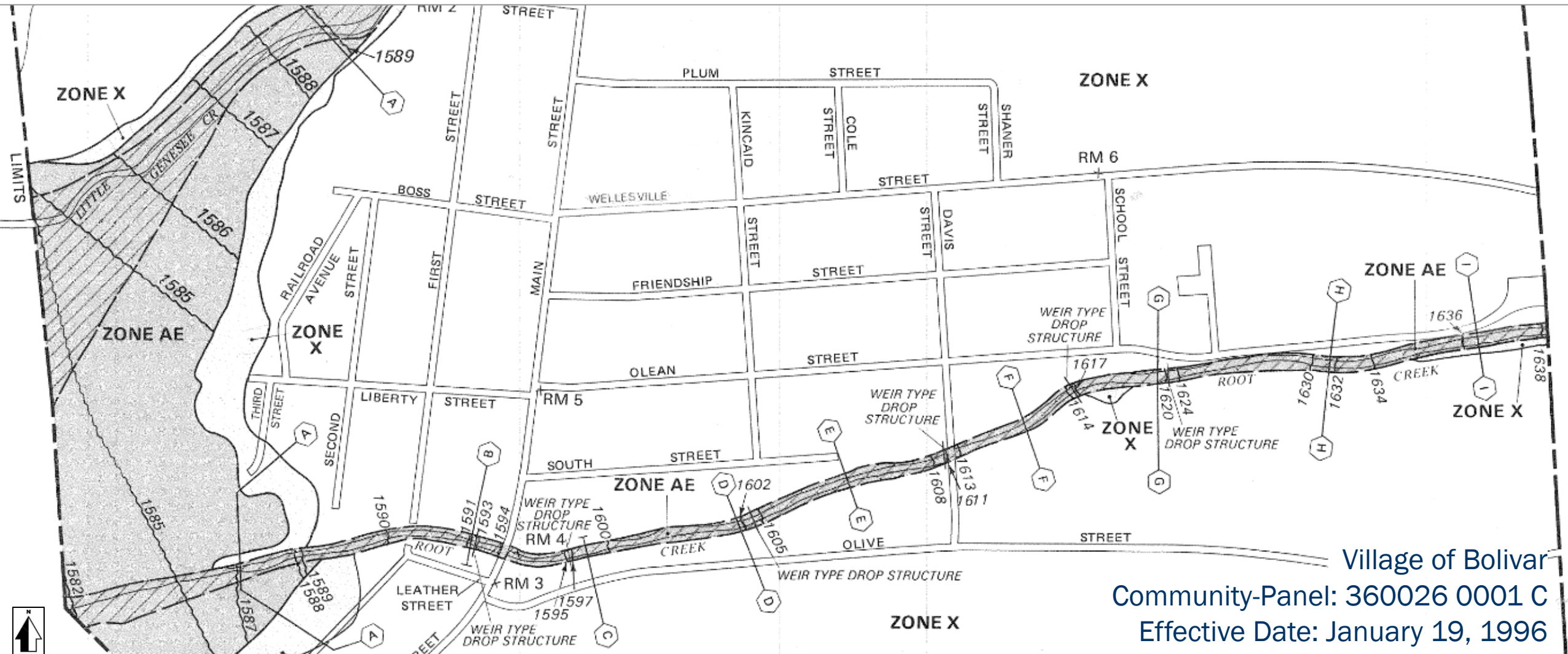
FEMA

Right Bank Root Creek Levee System – NLD



FEMA

Effective Flood Insurance Rate Map (FIRM)



Village of Bolivar

Community-Panel: 360026 0001 C

Effective Date: January 19, 1996



FEMA

Results of Initial Data Analysis

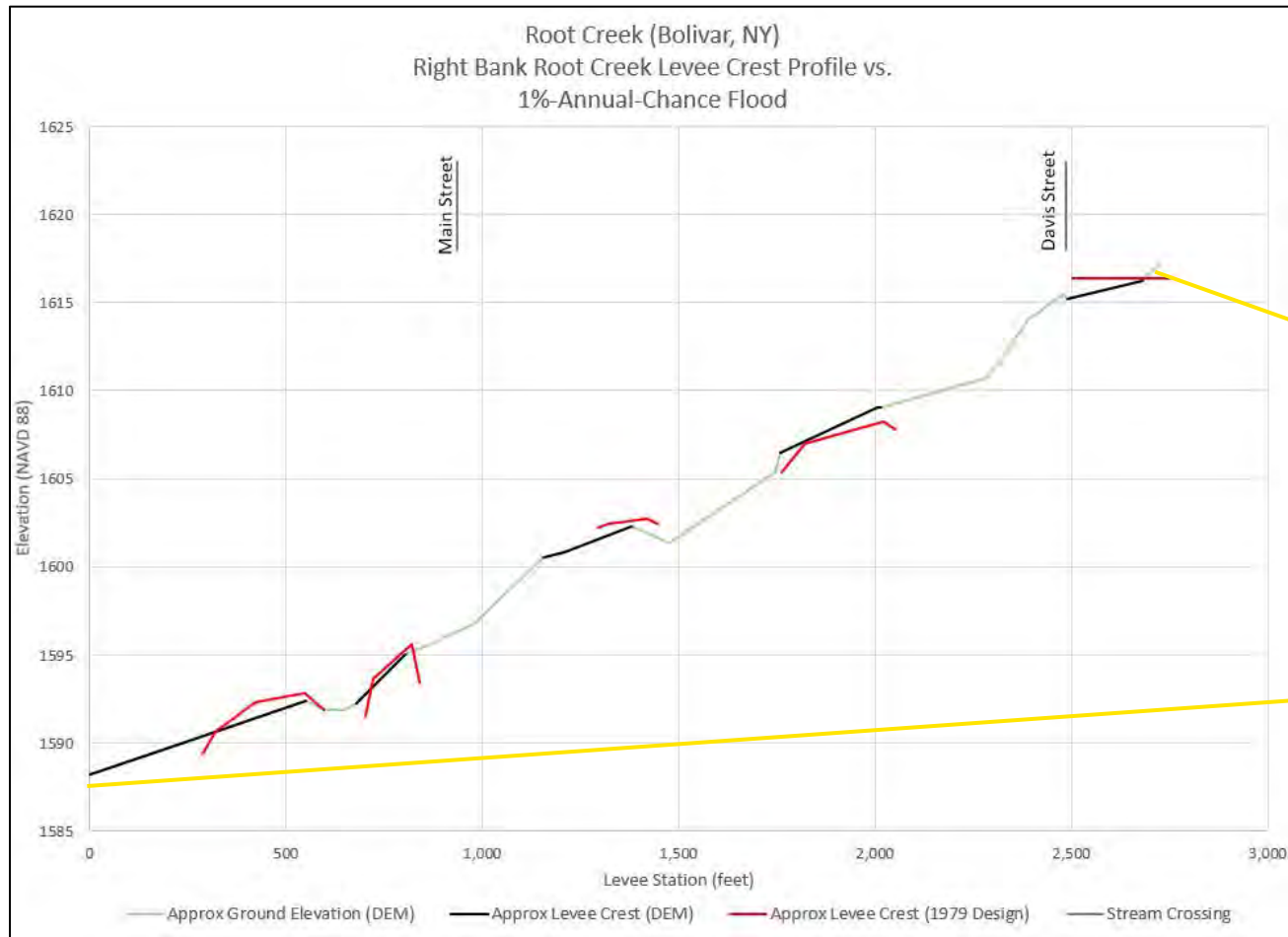
Village and Town of Bolivar



FEMA

Approximate Levee Profile Exhibit

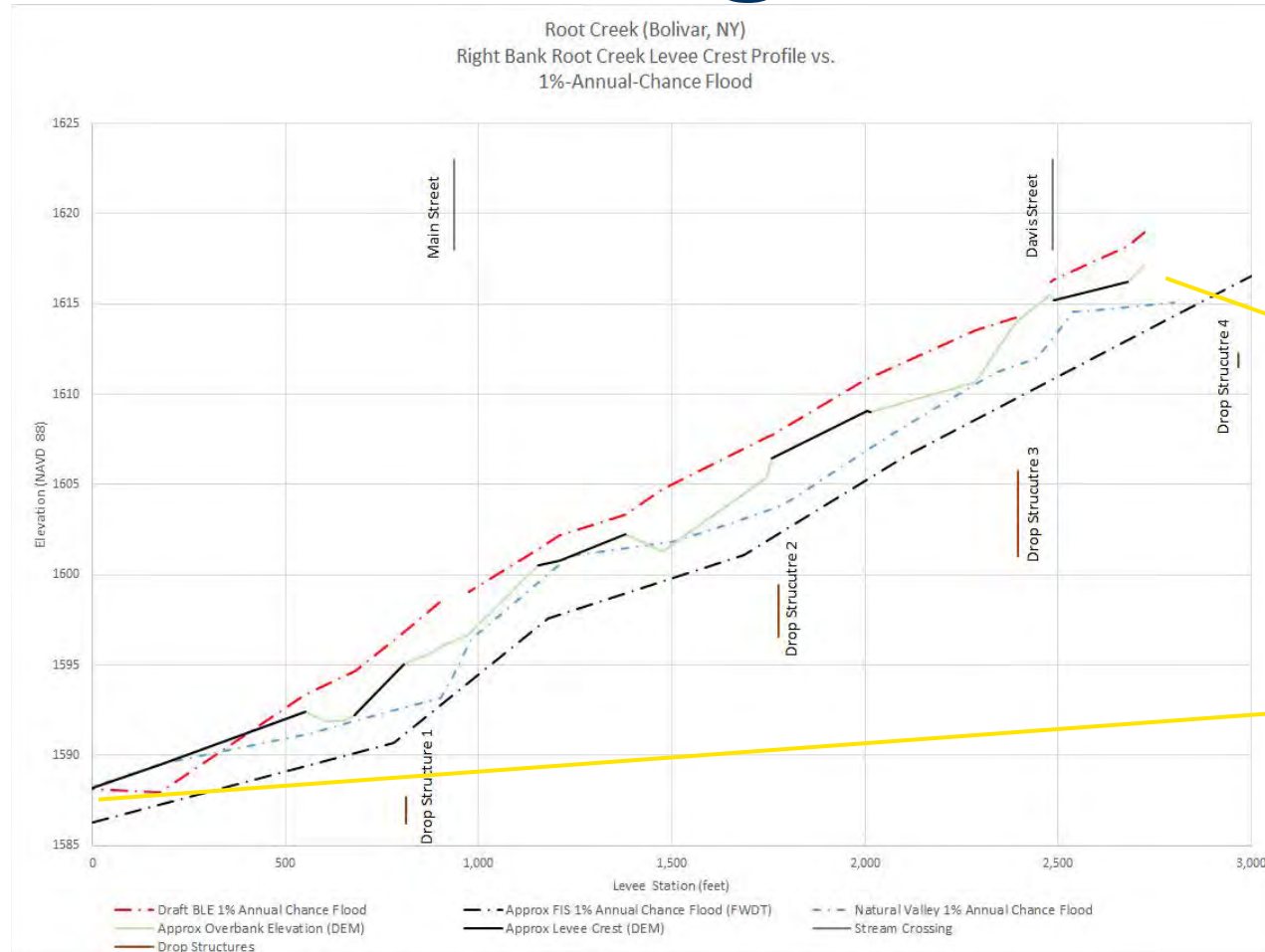
Root Creek Right Bank Levee



FEMA

BLE Water Surface Profile Exhibit

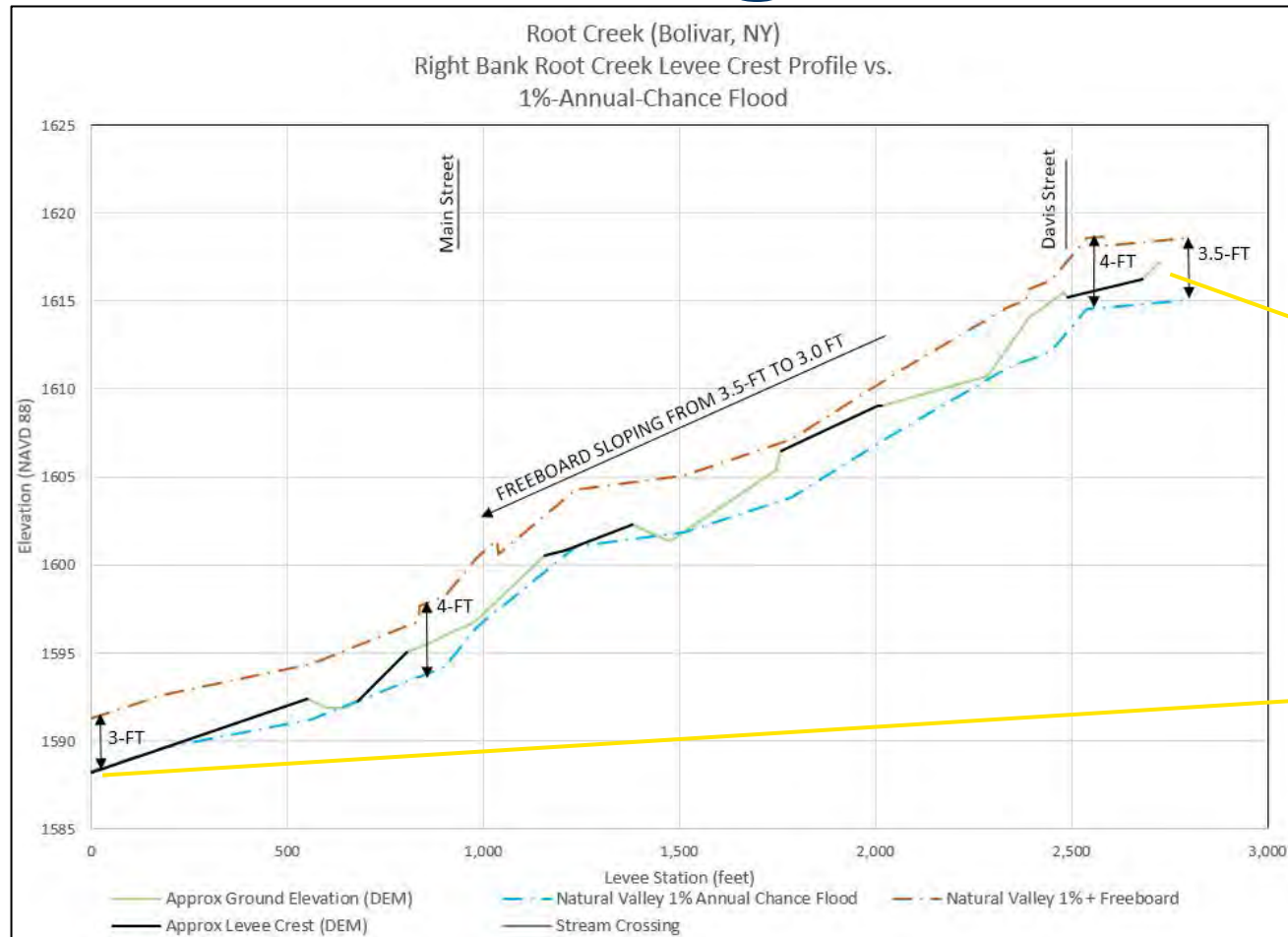
Root Creek Right Bank Levee



FEMA

BLE + Estimated Freeboard Profile Exhibit

Root Creek Right Bank Levee



FEMA

Natural Valley Procedure

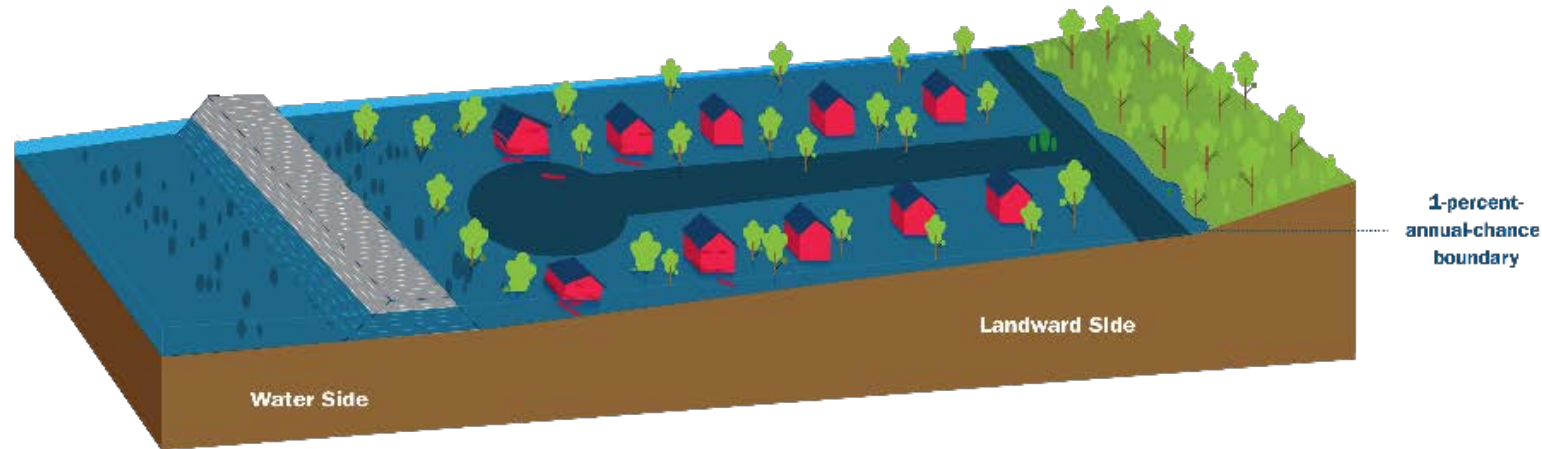
This analysis identifies the landside flood risk as though the levee does not impact the flood elevation.

Applications:

- Levee does not meet 44CFR65.10
→ Zone AE SFHA

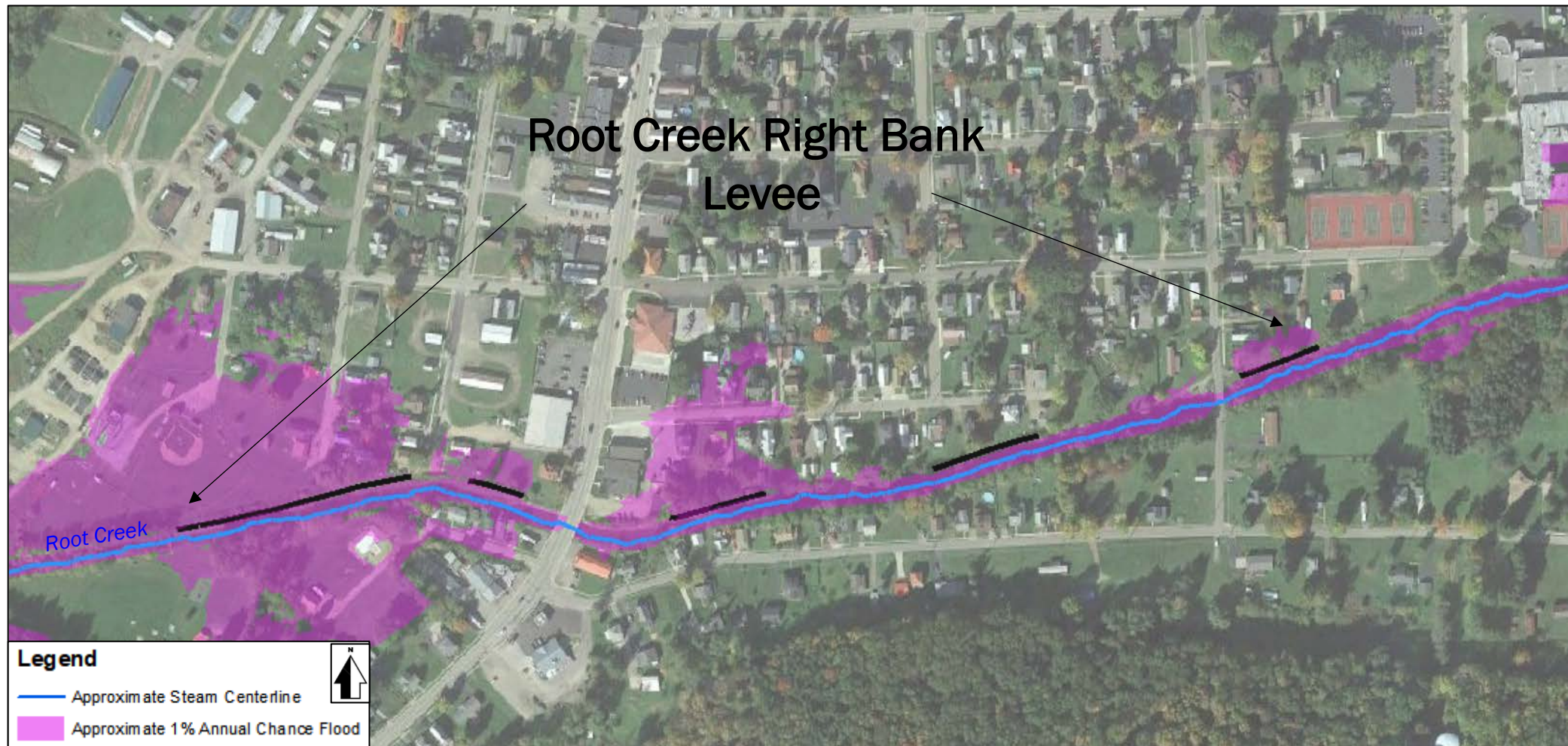
Applications:

- Levee meets 44CFR65.10
→ ZONE X – Area with reduced flood risk due to levee



FEMA

Natural Valley Procedure



FEMA

Review Levee Flood Hazard *Village and Town of Wellsville* *Genesee River*



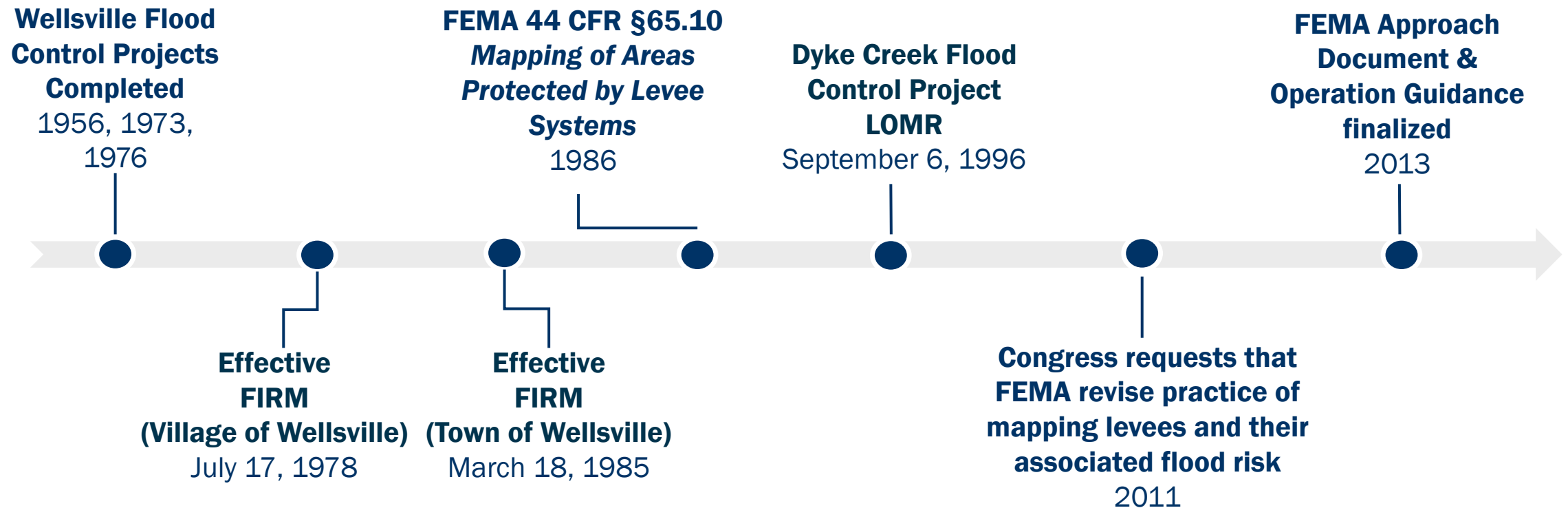
FEMA

Genesee River Left and Right Bank Levee Systems

Dyke Creek Left Bank Levee System

Dyke Creek Flood Control Project

Village and Town of Wellsville, NY

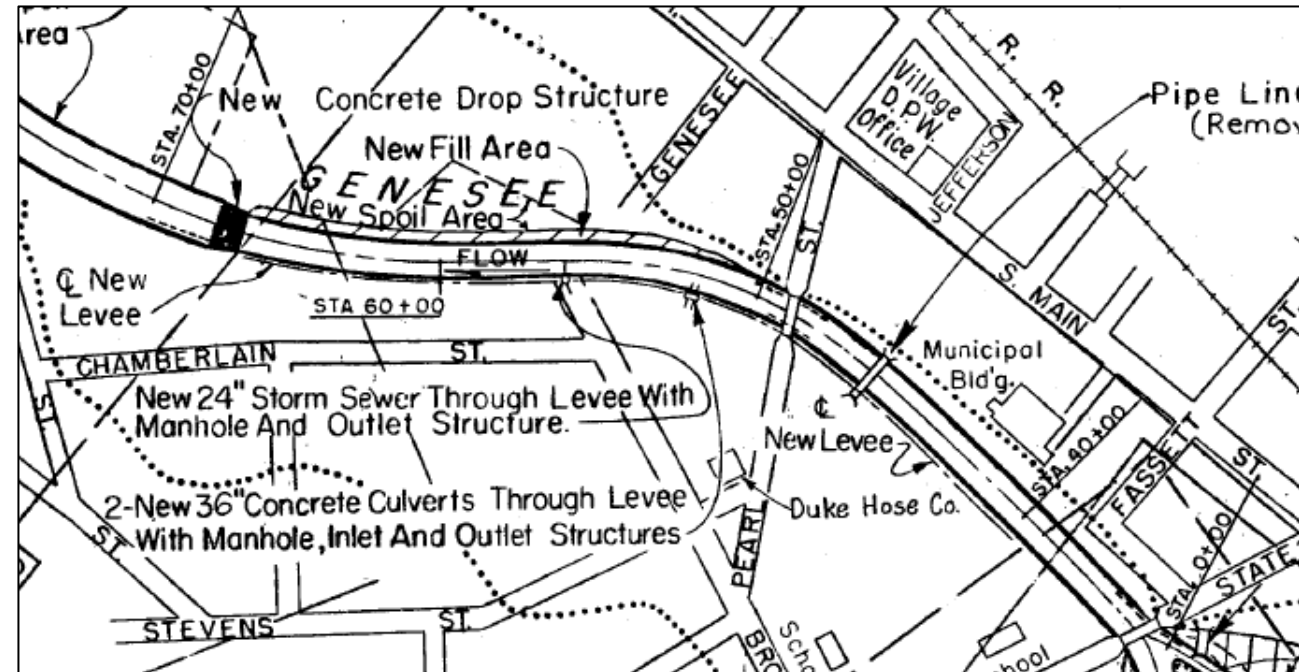


FEMA

Genesee River Left Bank Levee System



National Levee Database

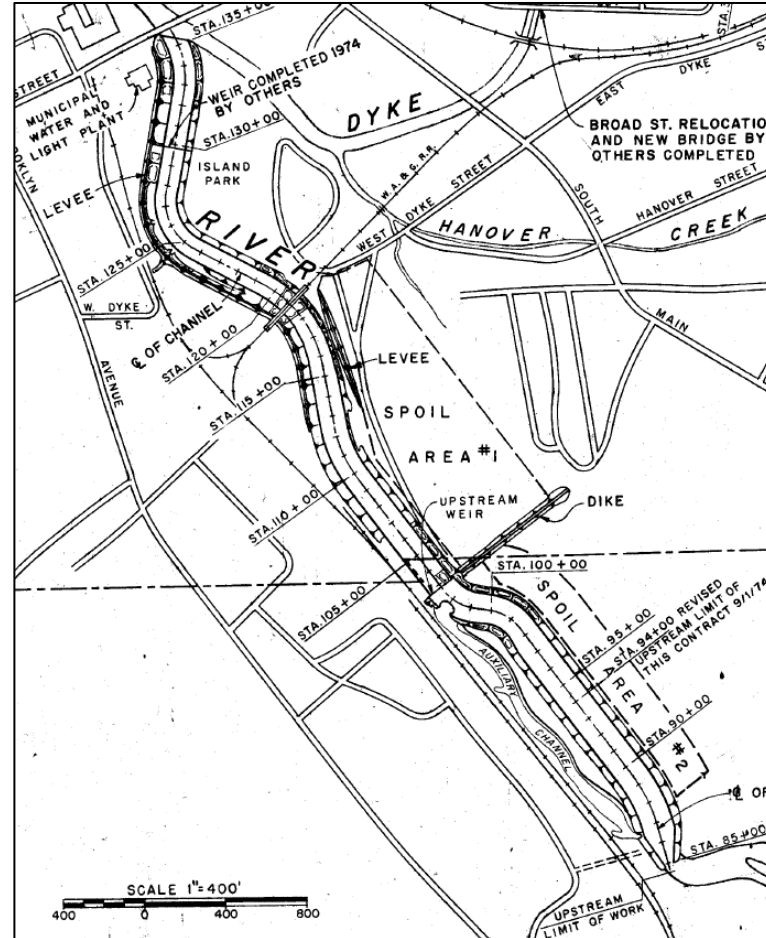


Local Flood Protection, 1956 As-built General Plan

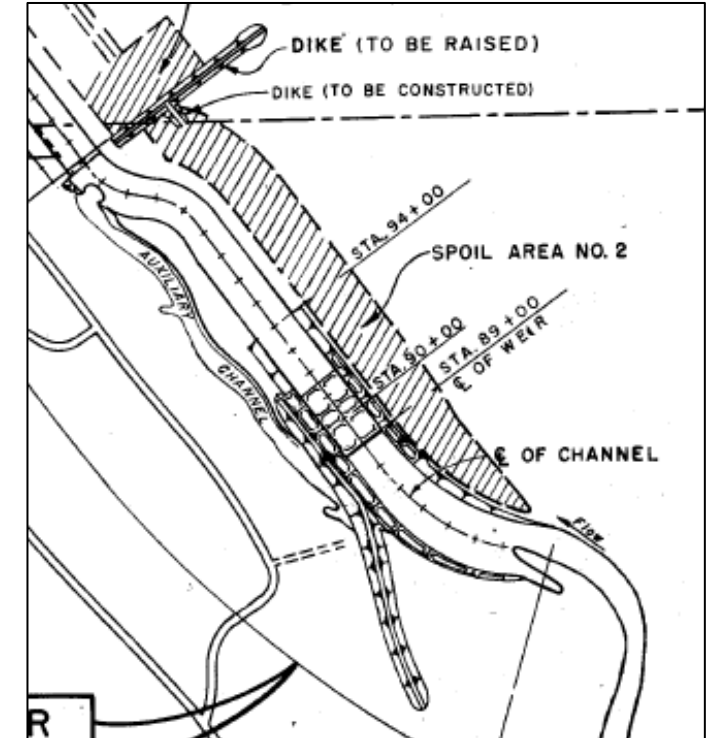
Genesee River Left Bank Levee System



National Levee Database



Local Flood Protection
1973 As-built General Plan



Local Flood Protection
1976 As-built General Plan

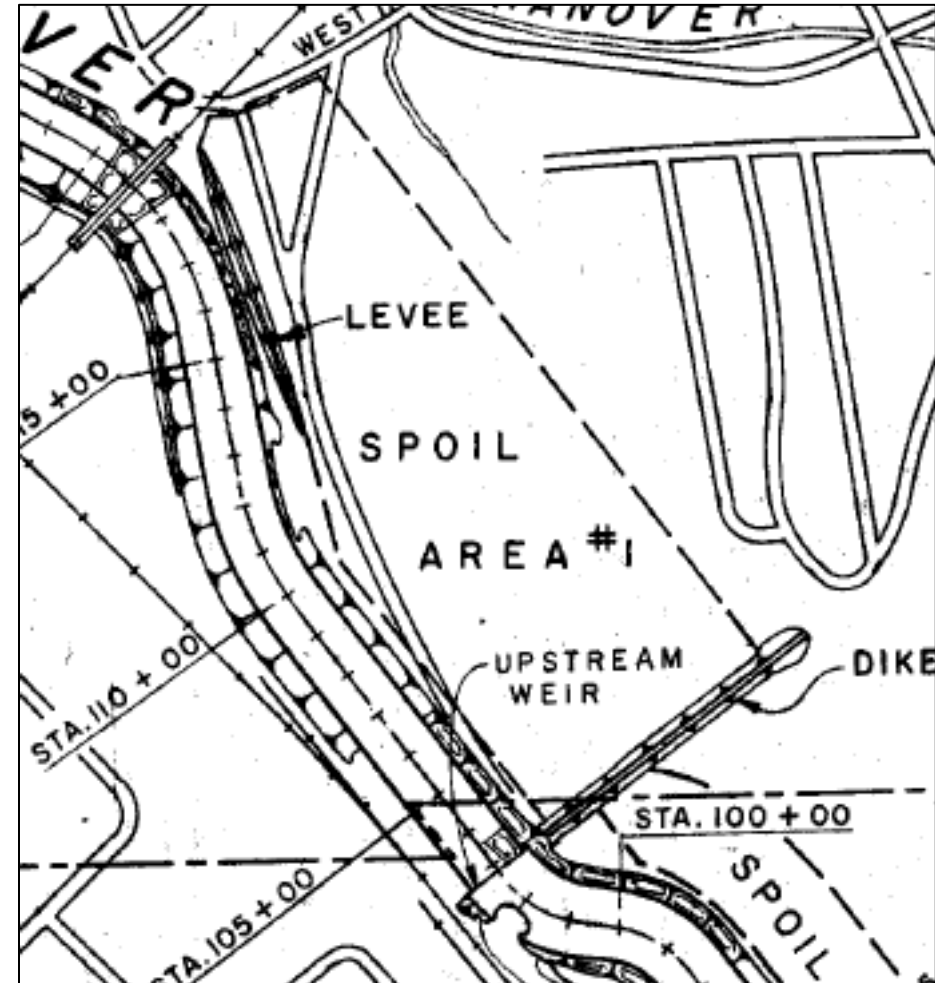


FEMA

Genesee River Right Bank Levee System



National Levee Database

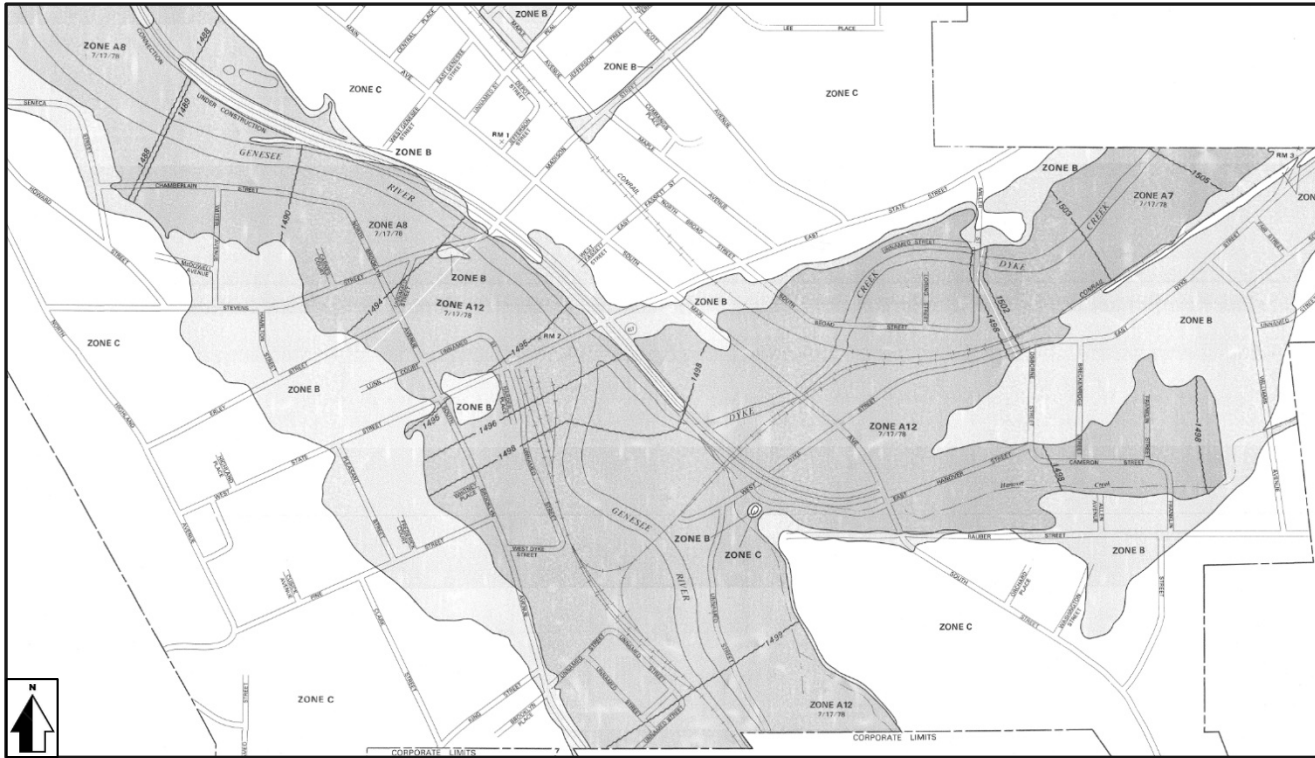


Local Flood Protection
1973 As-built General Plan

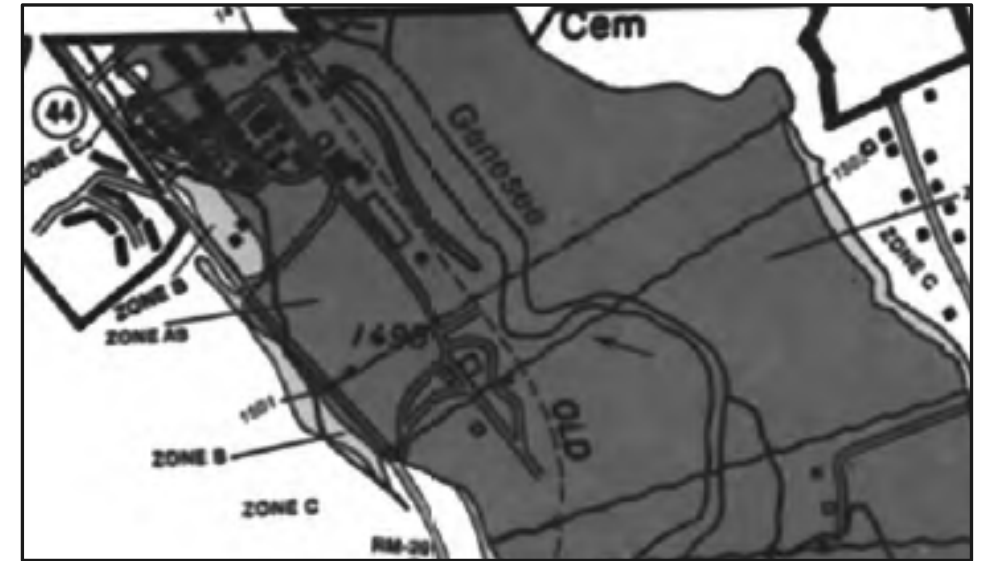


FEMA

Effective Flood Insurance Rate Maps (FIRMs)



Village of Wellsville
Community-Panel: 360036 0001 B
Effective Date: July 17, 1978



Town of Wellsville
Community-Panel: 360035 0020 B
Effective Date: March 18, 1985



FEMA

Results of Initial Data Analysis

Village and Town of Wellsville

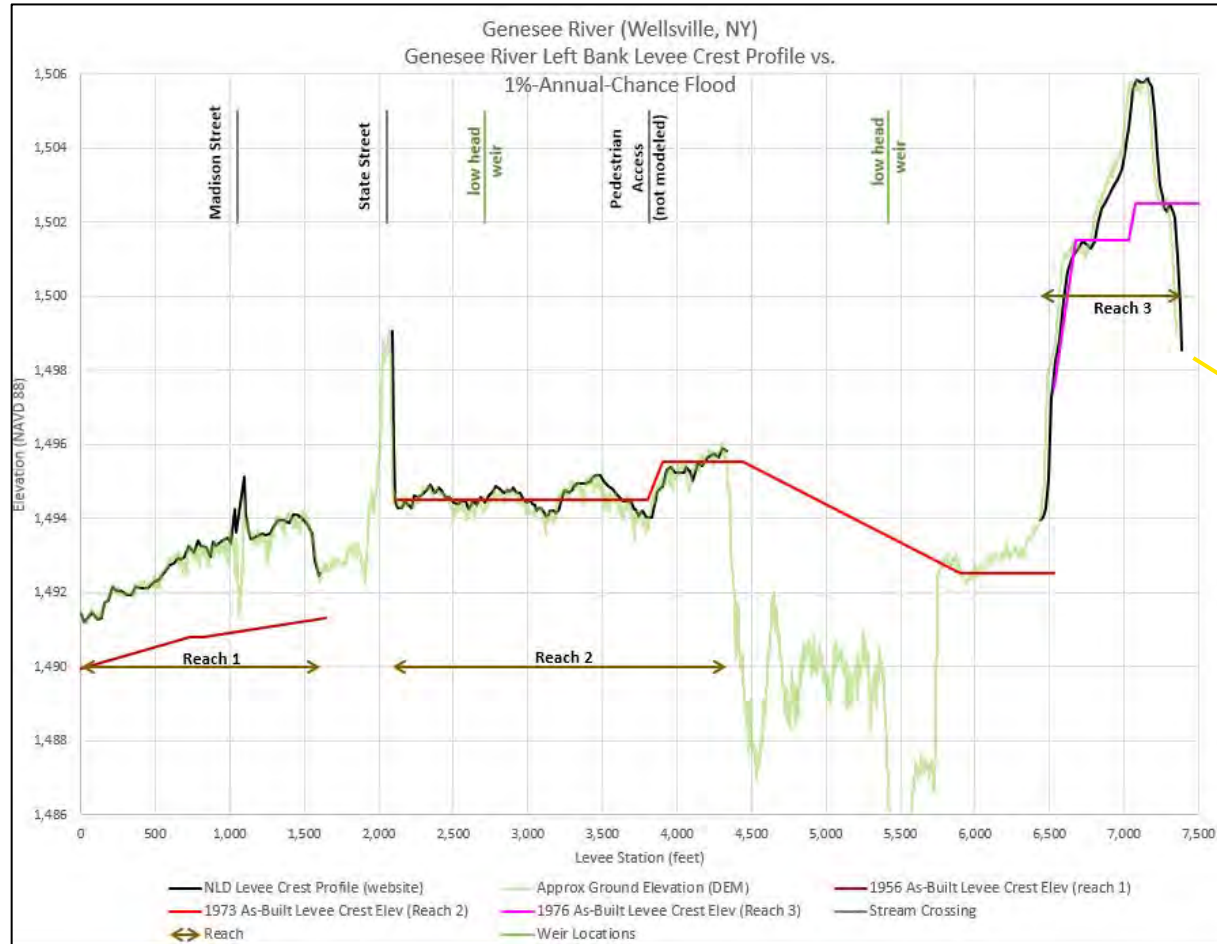
Genesee River



FEMA

Approximate Levee Profile Exhibit

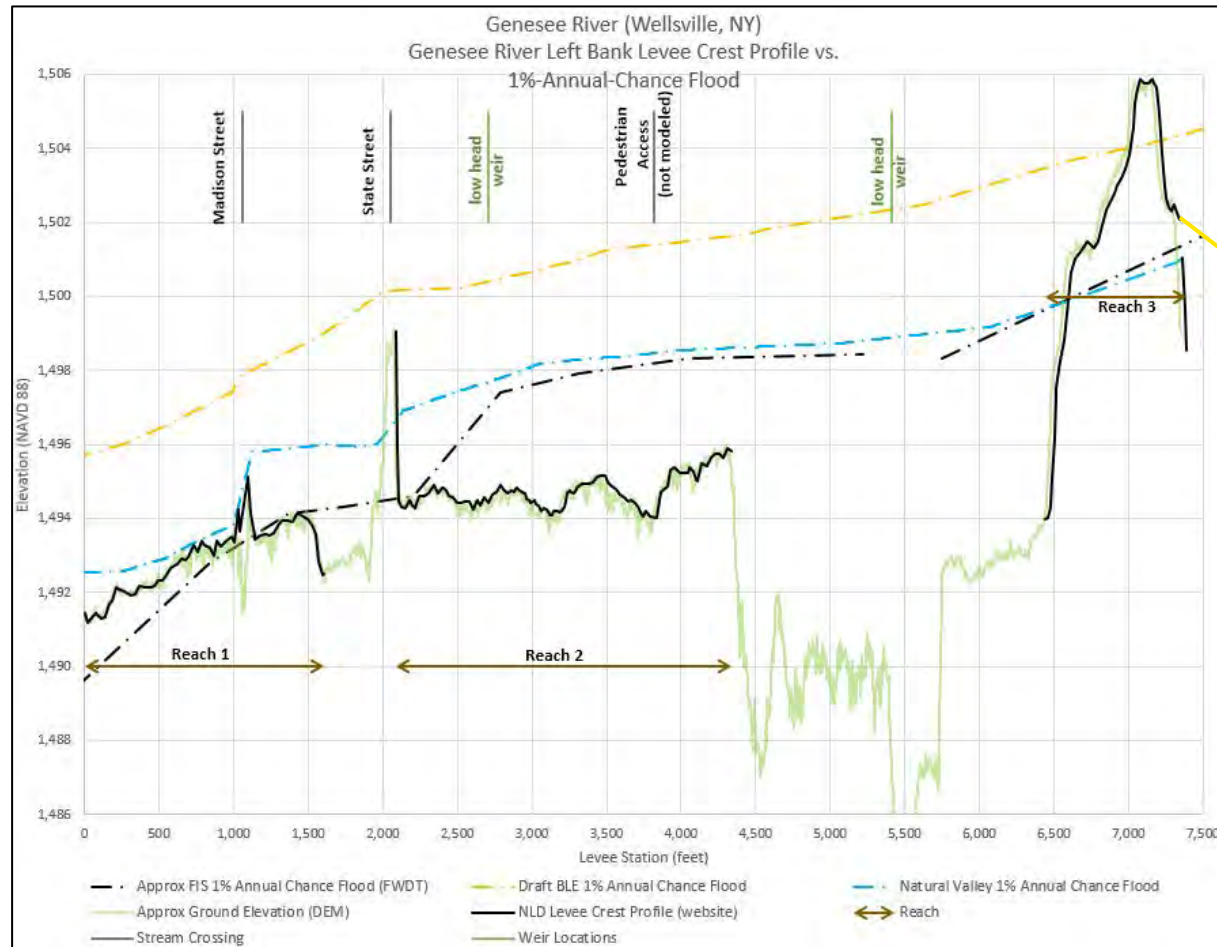
Genesee River Left Bank Levee



FEMA

BLE Water Surface Profile Exhibit

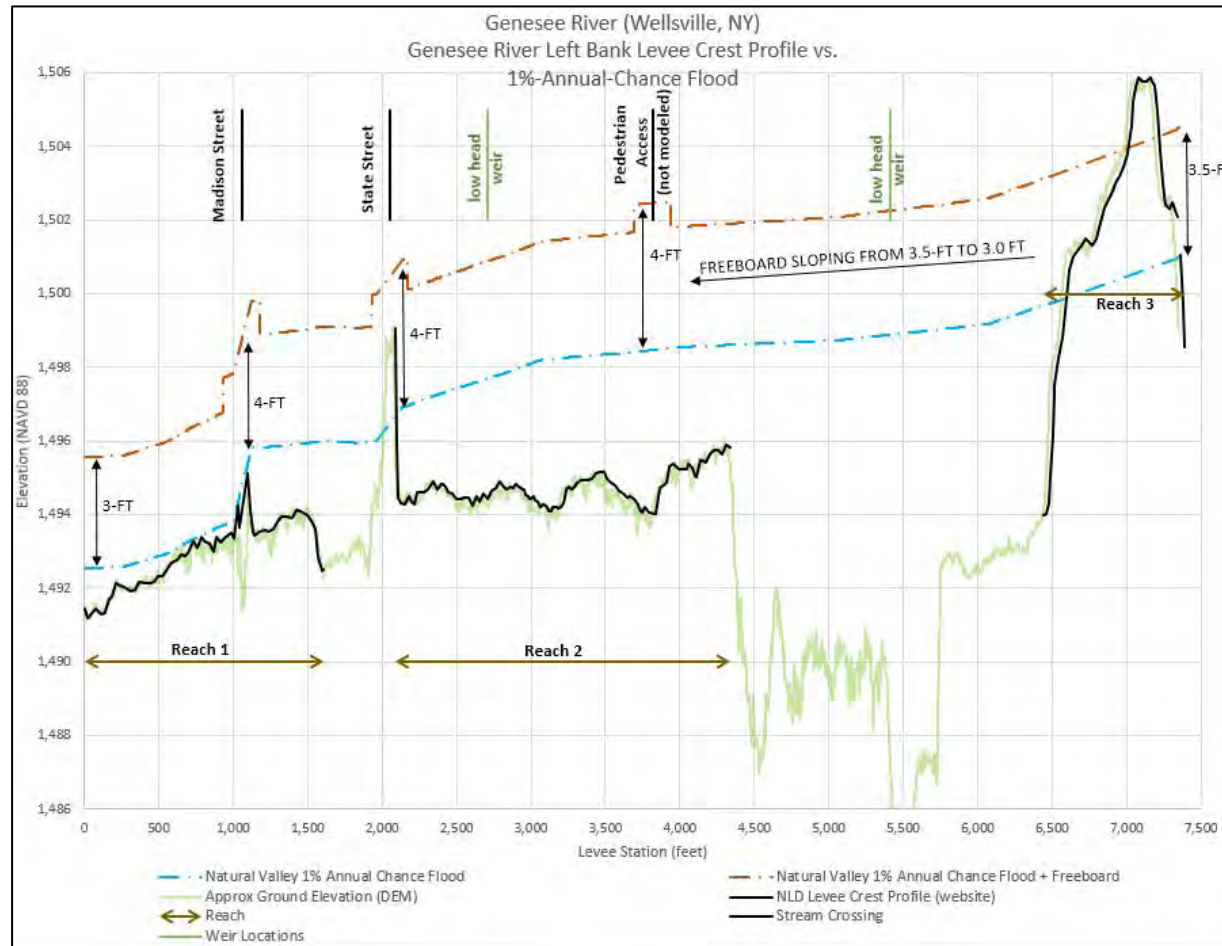
Genesee River Left Bank Levee



FEMA

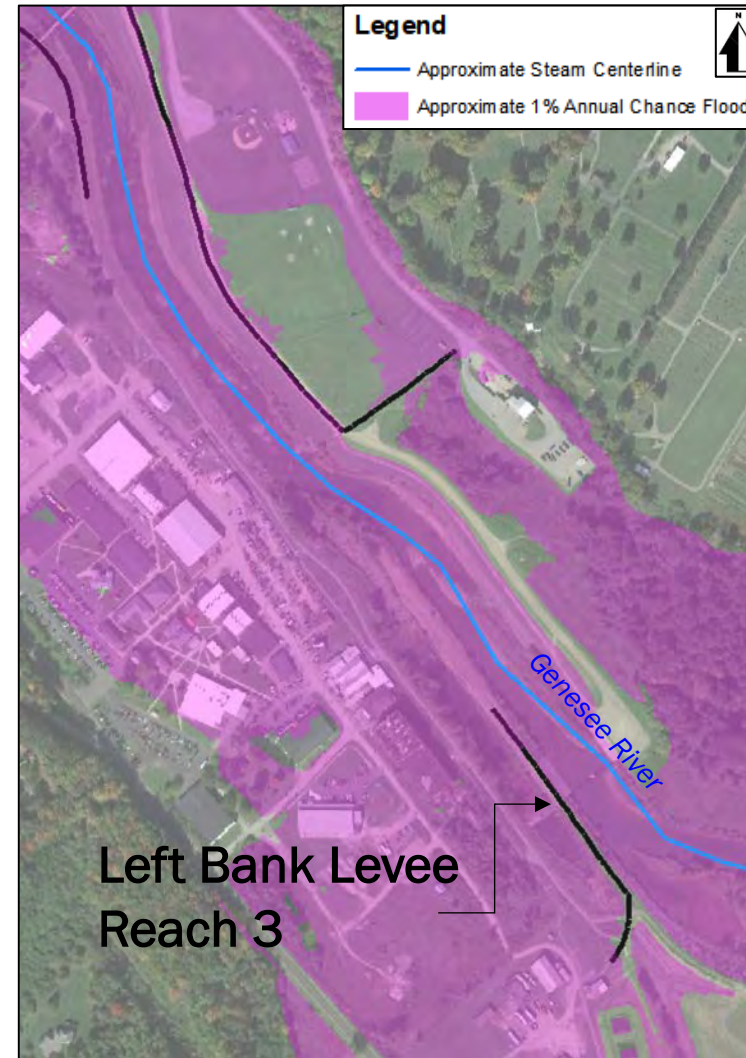
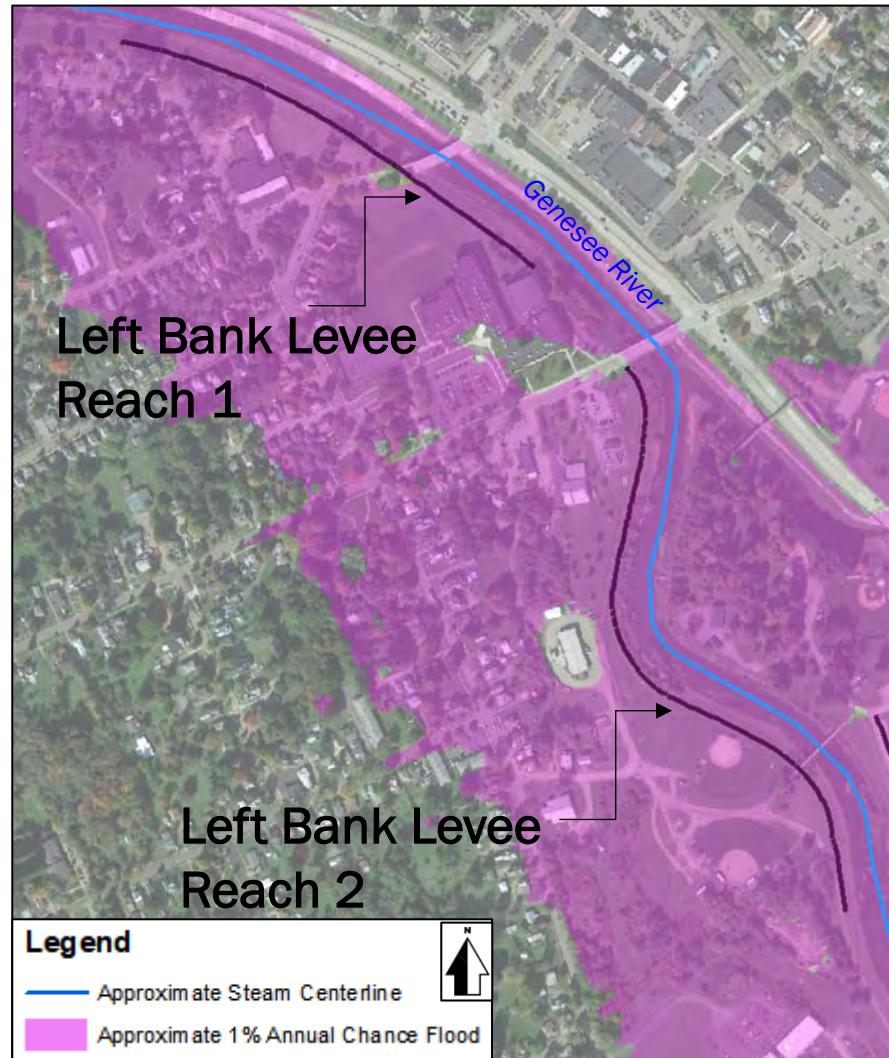
BLE + Estimated Freeboard Profile Exhibit

Genesee River Left Bank Levee



FEMA

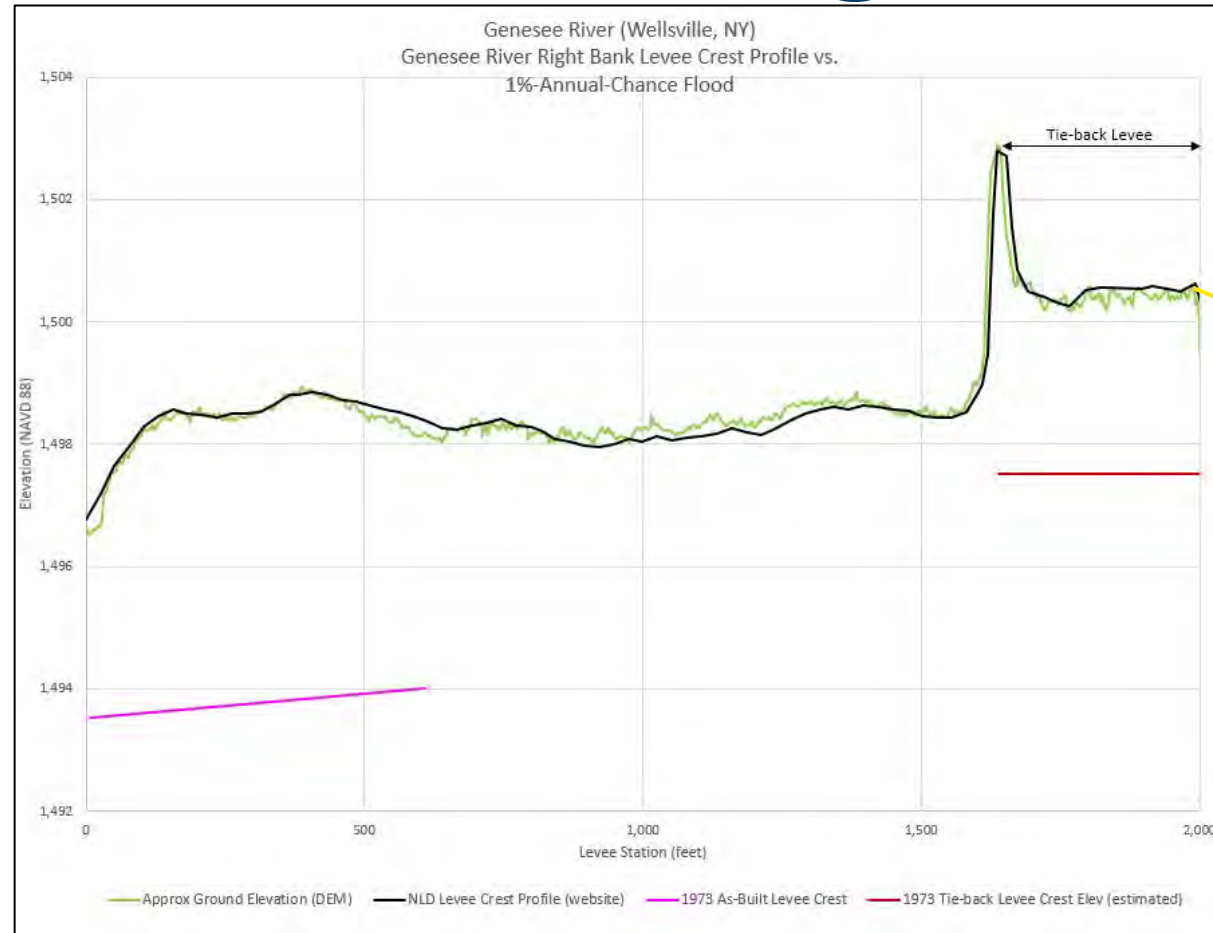
Natural Valley Procedure



FEMA

Approximate Levee Profile Exhibit

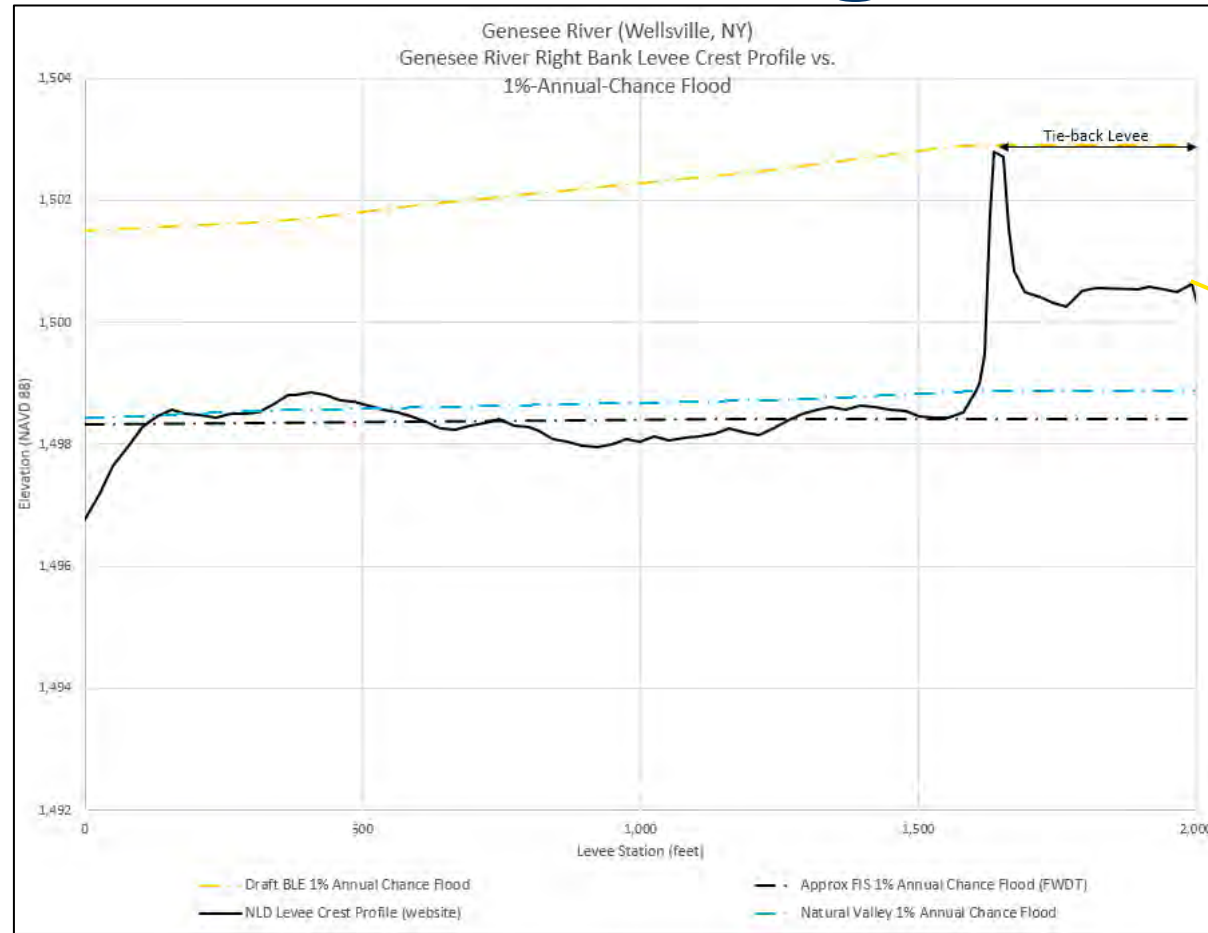
Genesee River Right Bank Levee



FEMA

BLE Water Surface Profile Exhibit

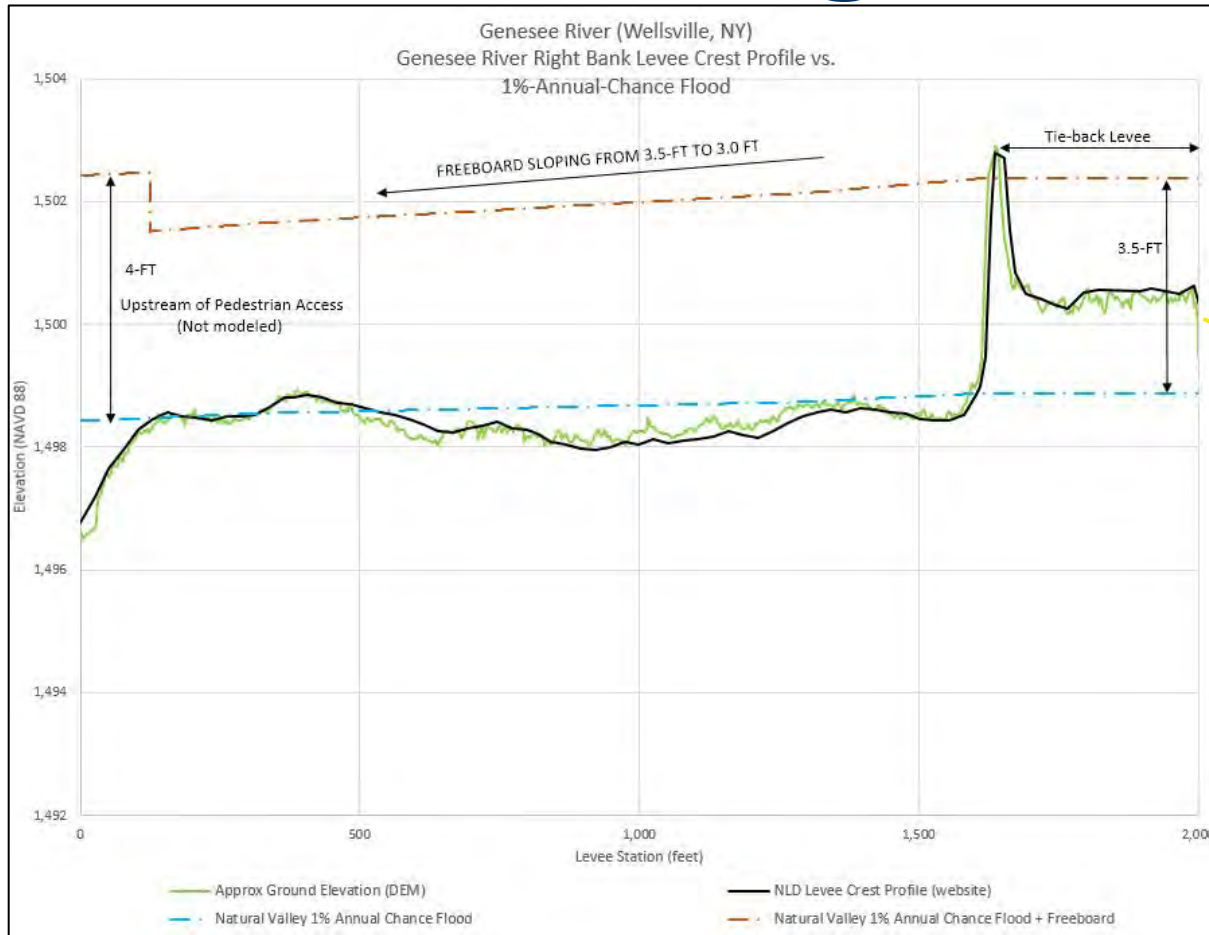
Genesee River Right Bank Levee



FEMA

BLE + Estimated Freeboard Profile Exhibit

Genesee River Right Bank Levee



FEMA

Natural Valley Procedure



FEMA

Review Levee Flood Hazard *Village and Town of Wellsville* *Genesee River*

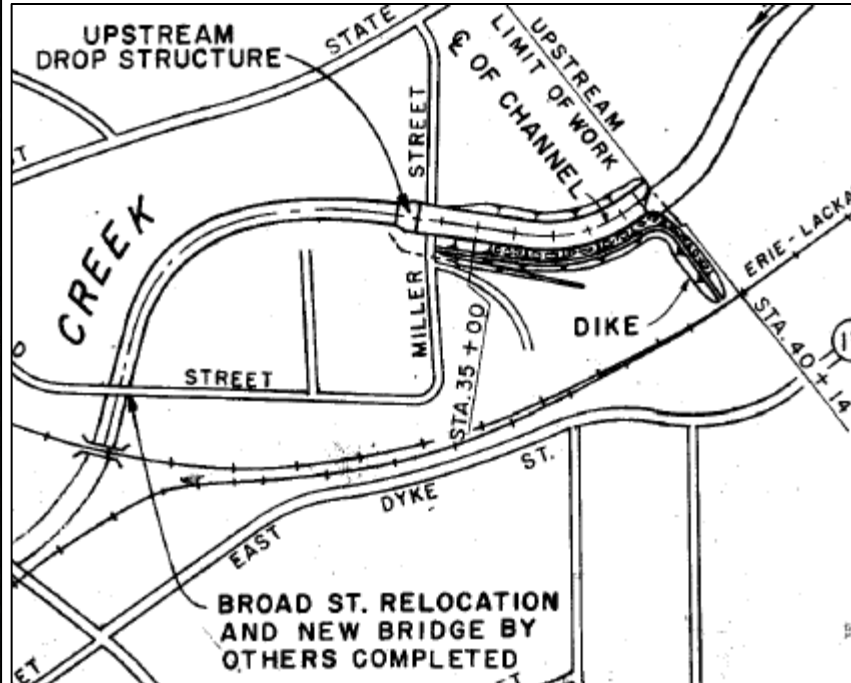


FEMA

Dyke Creek Left Bank Levee System - NLD



National Levee Database



Local Flood Protection
1973 As-built General Plan

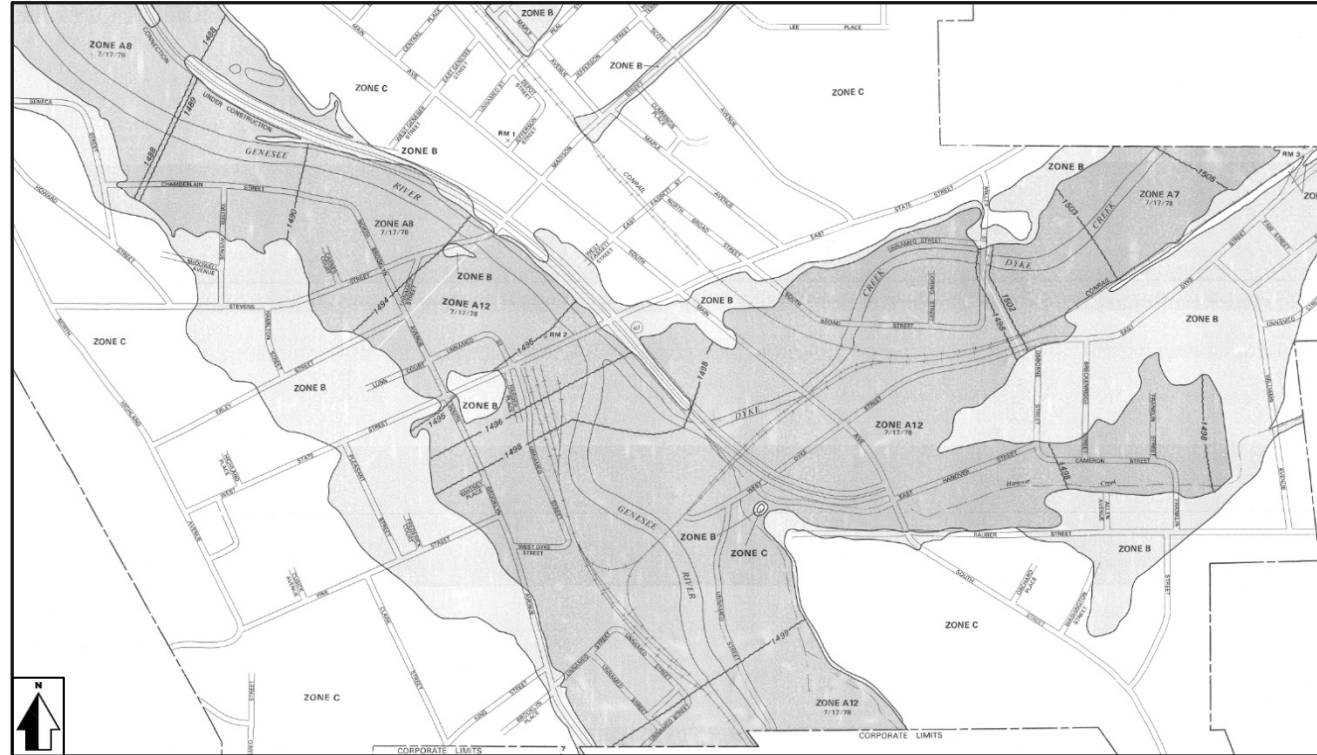


Local Flood Protection
1976 As-built General Plan



FEMA

Effective Flood Insurance Rate Map (FIRM)

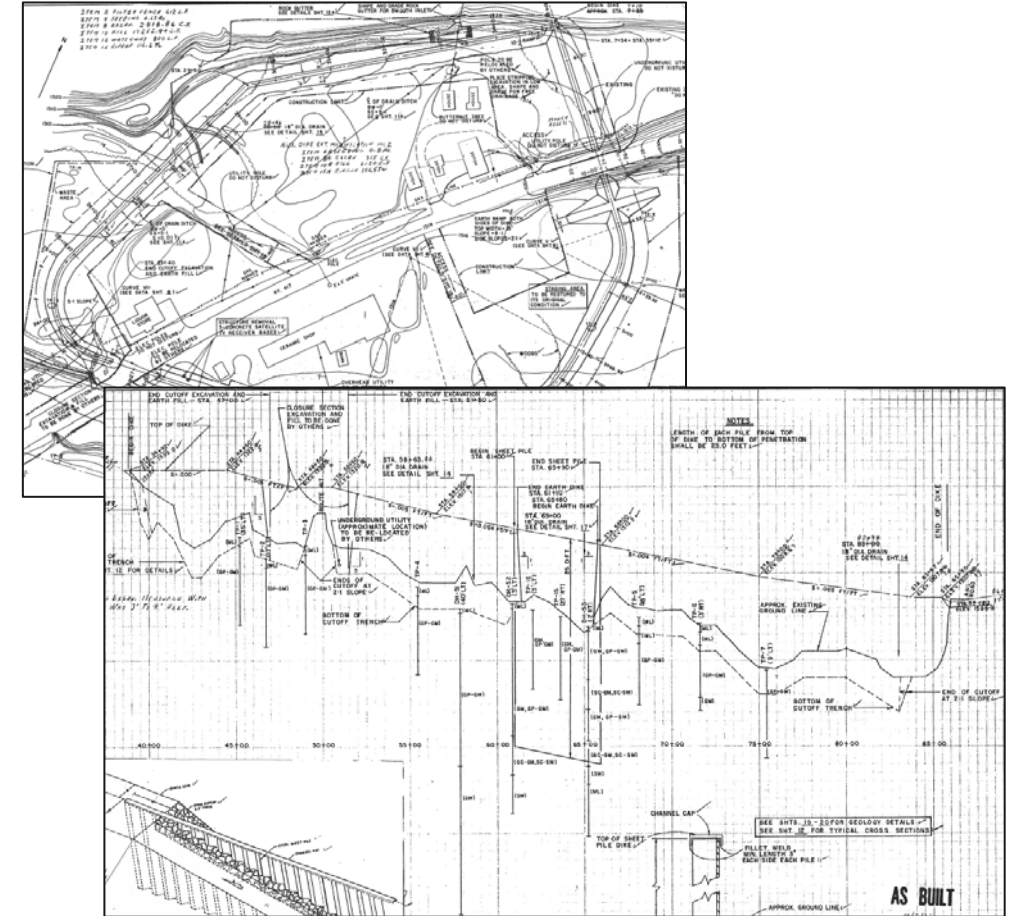


Village of Wellsville
Community-Panel: 360036 0001 B
Effective Date: July 17, 1978



FEMA

Dyke Creek Watershed Project

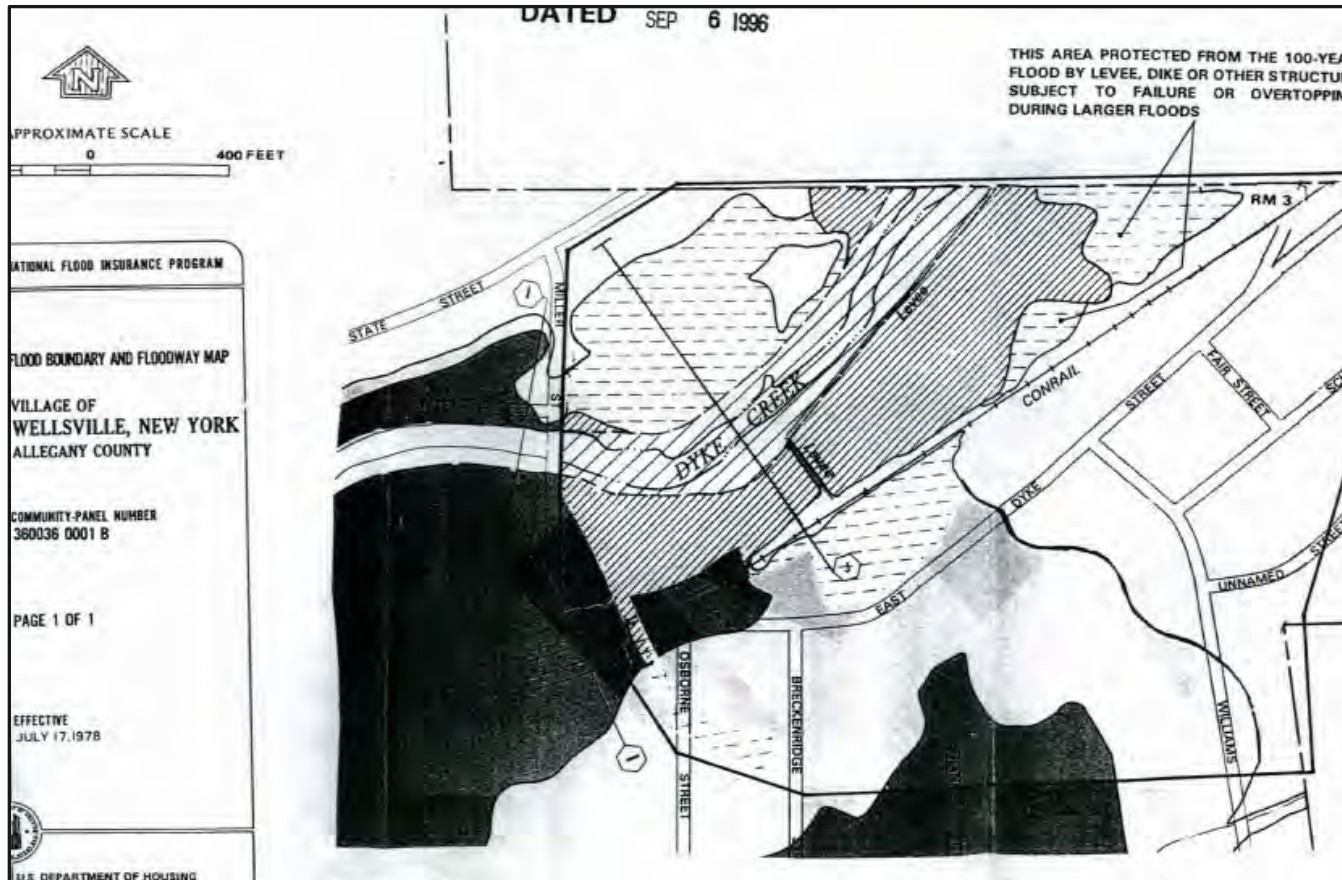


1992 Auxiliary Levee Plan and
Main Levee Profile Sheets

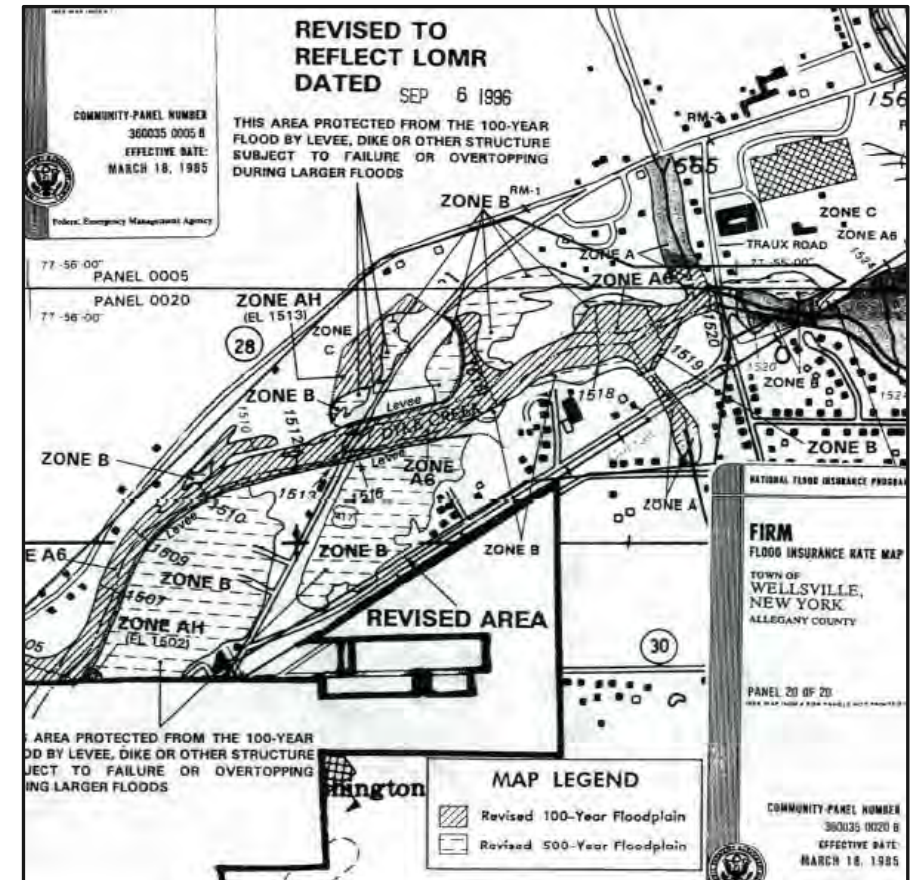


FEMA

Effective Letter of Map Revision (LOMR)



Village of Wellsville
LOMR Case No: 96-02-007P
Effective Date: September 6, 1996



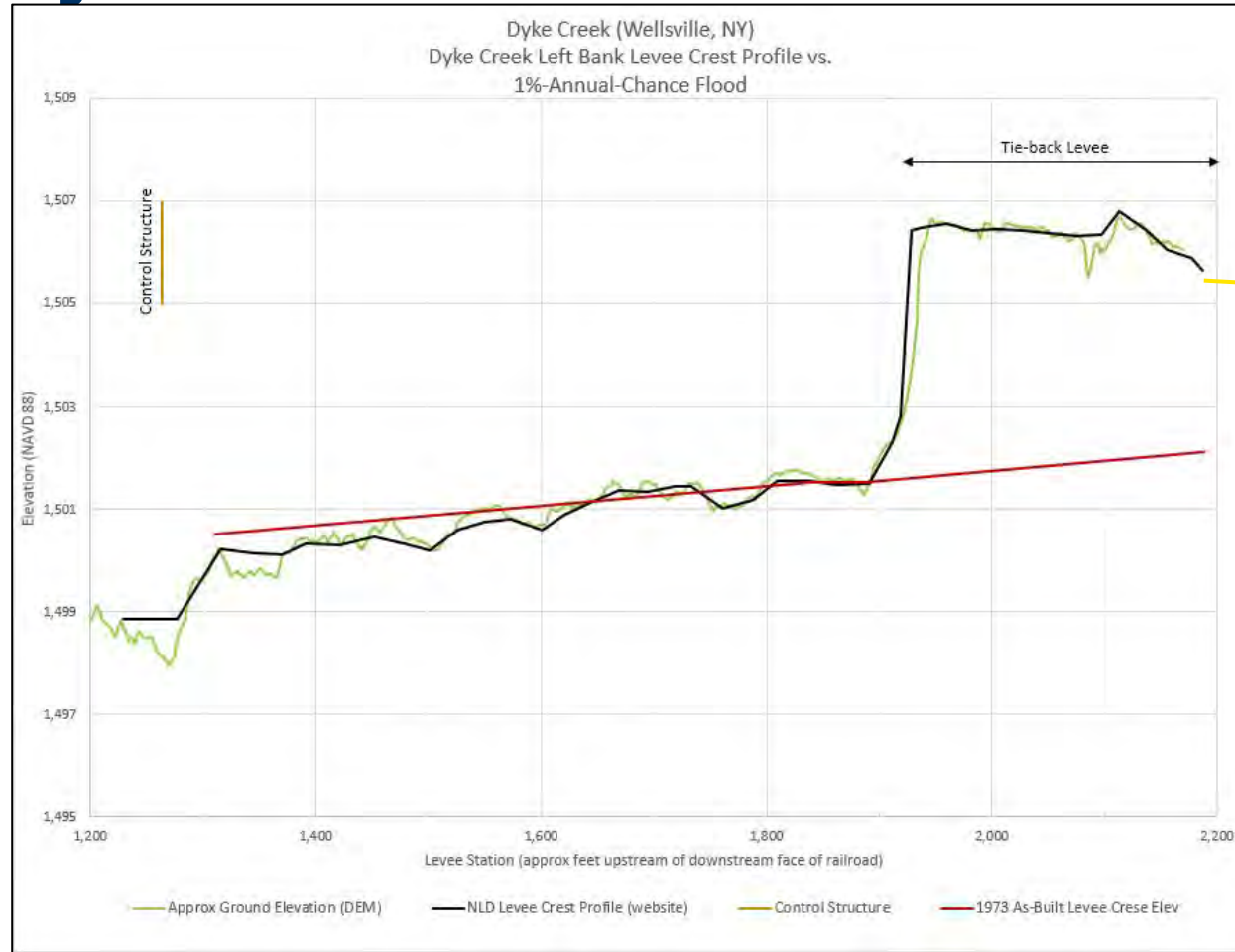
Town of Wellsville
LOMR Case No: 96-02-007P
Effective Date: September 6, 1996



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Approximate Levee Profile Exhibit

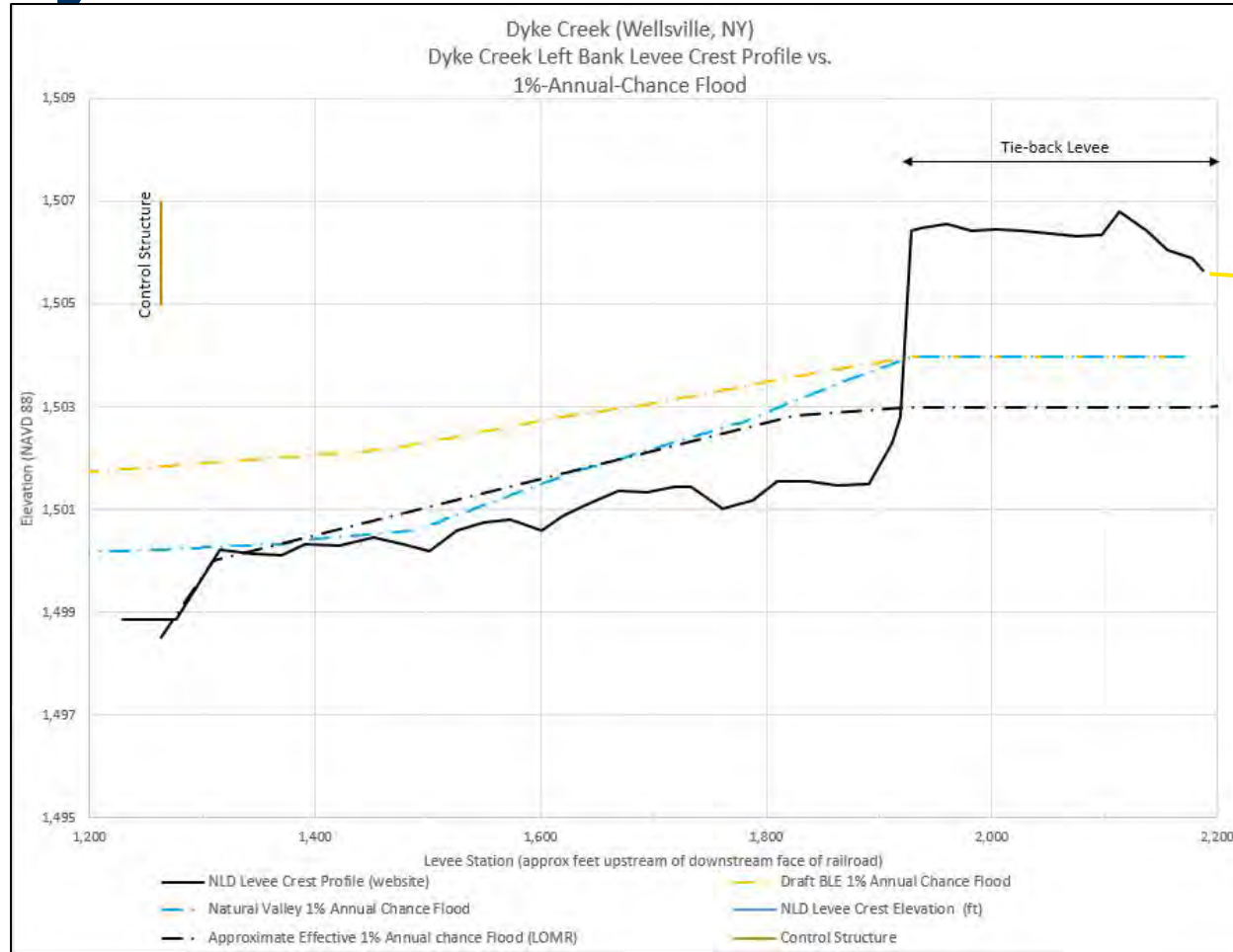
Dyke Creek Left Bank Levee



FEMA

BLE Water Surface Profile Exhibit

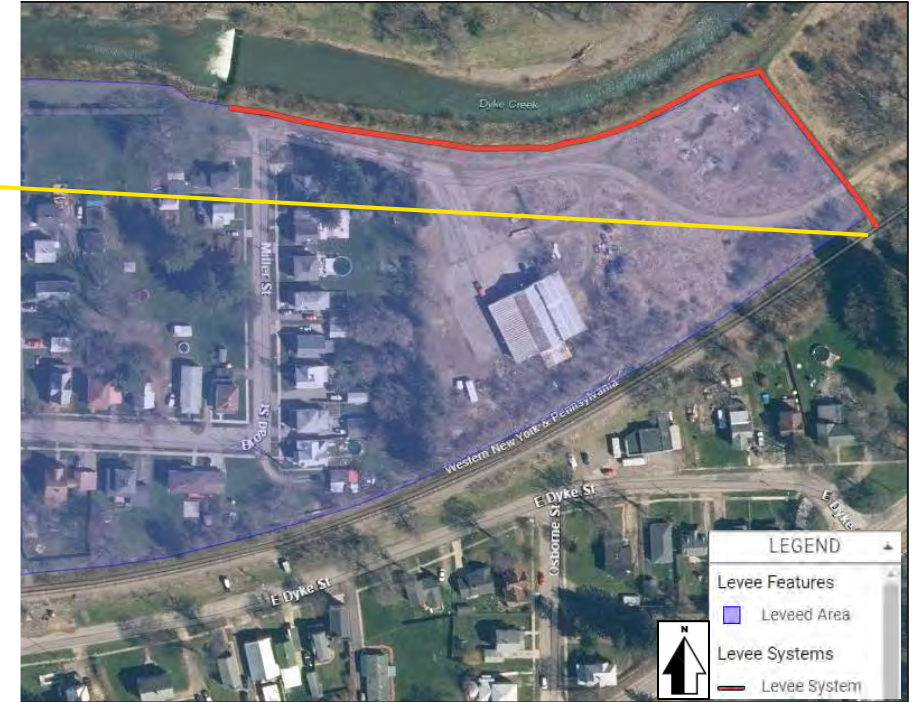
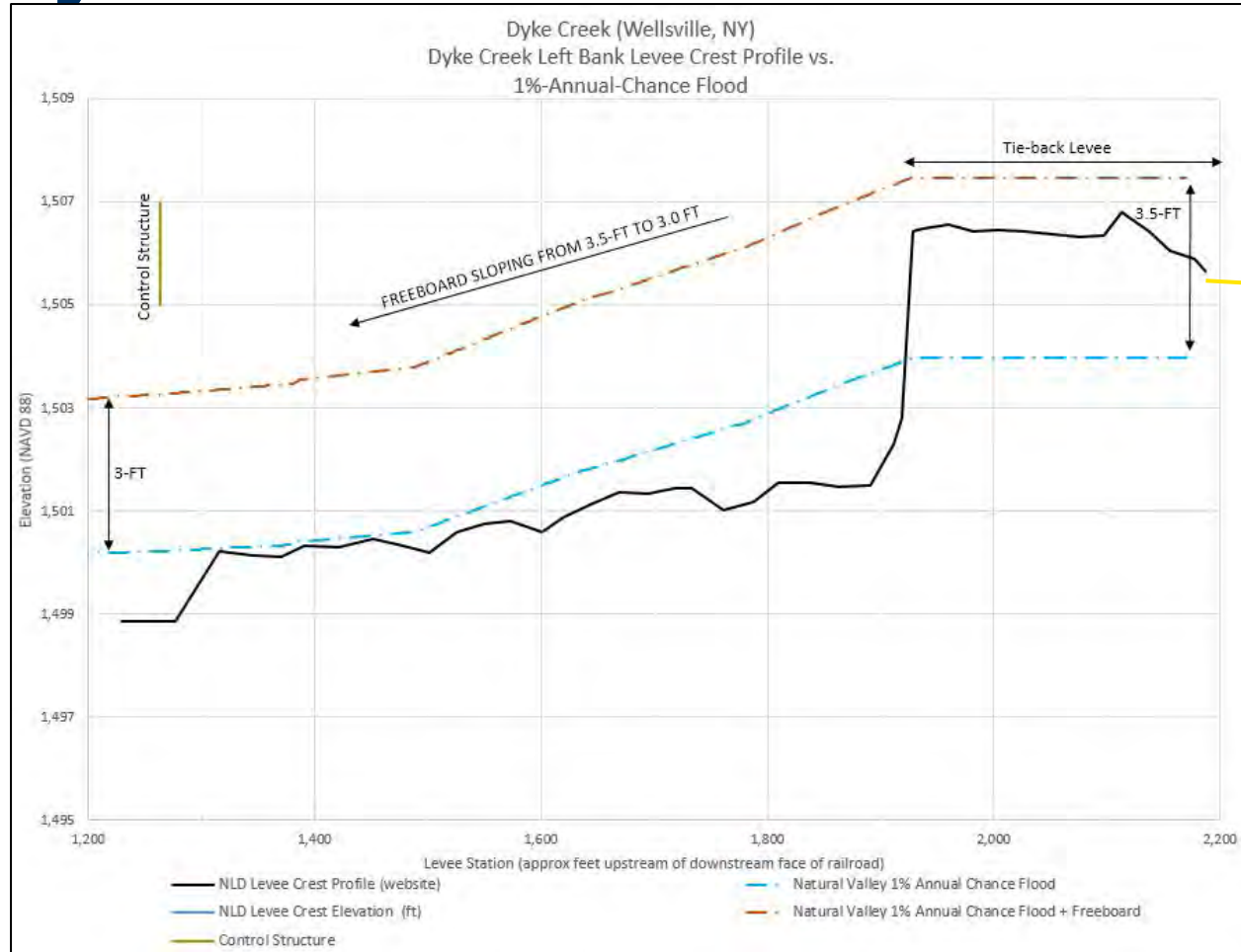
Dyke Creek Left Bank Levee



FEMA

BLE + Estimated Freeboard Profile Exhibit

Dyke Creek Left Bank Levee



FEMA

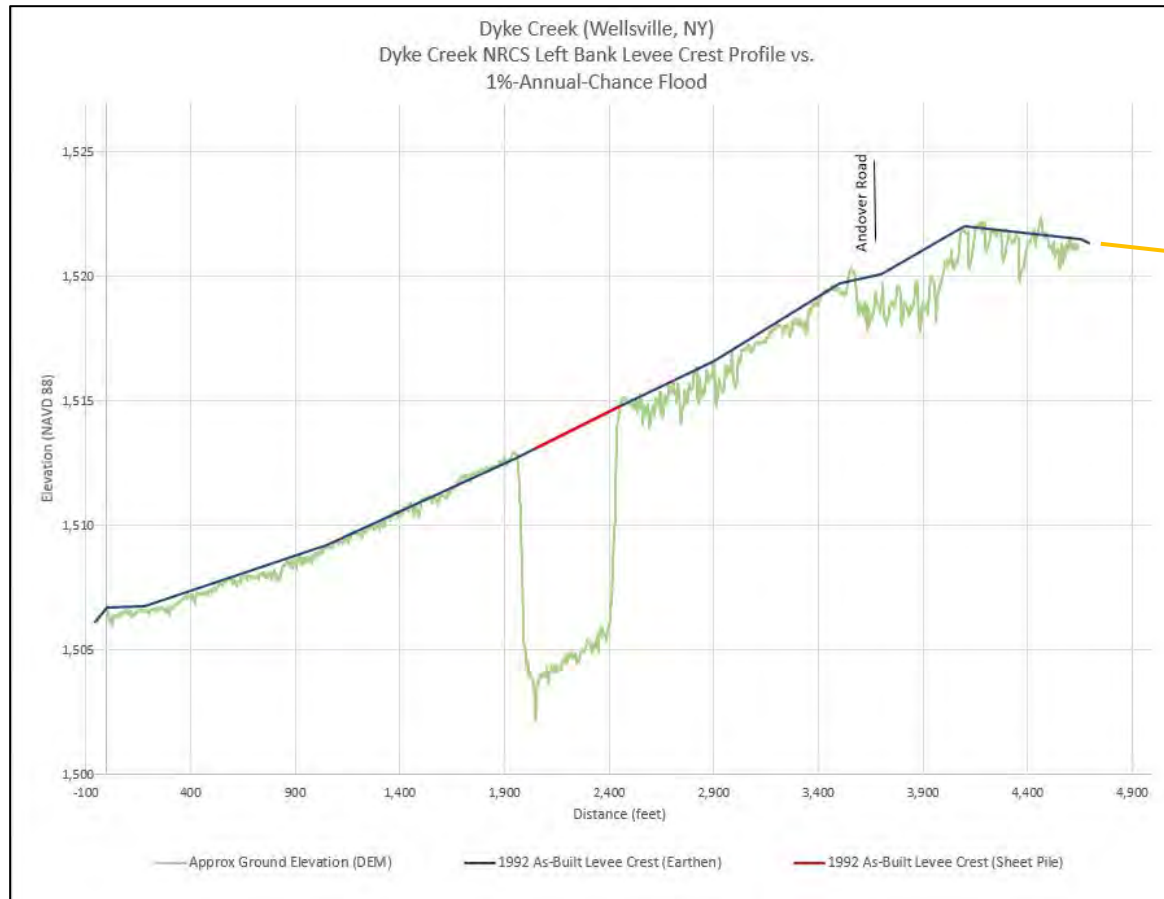
Natural Valley Procedure



FEMA

Approximate Levee Profile Exhibit

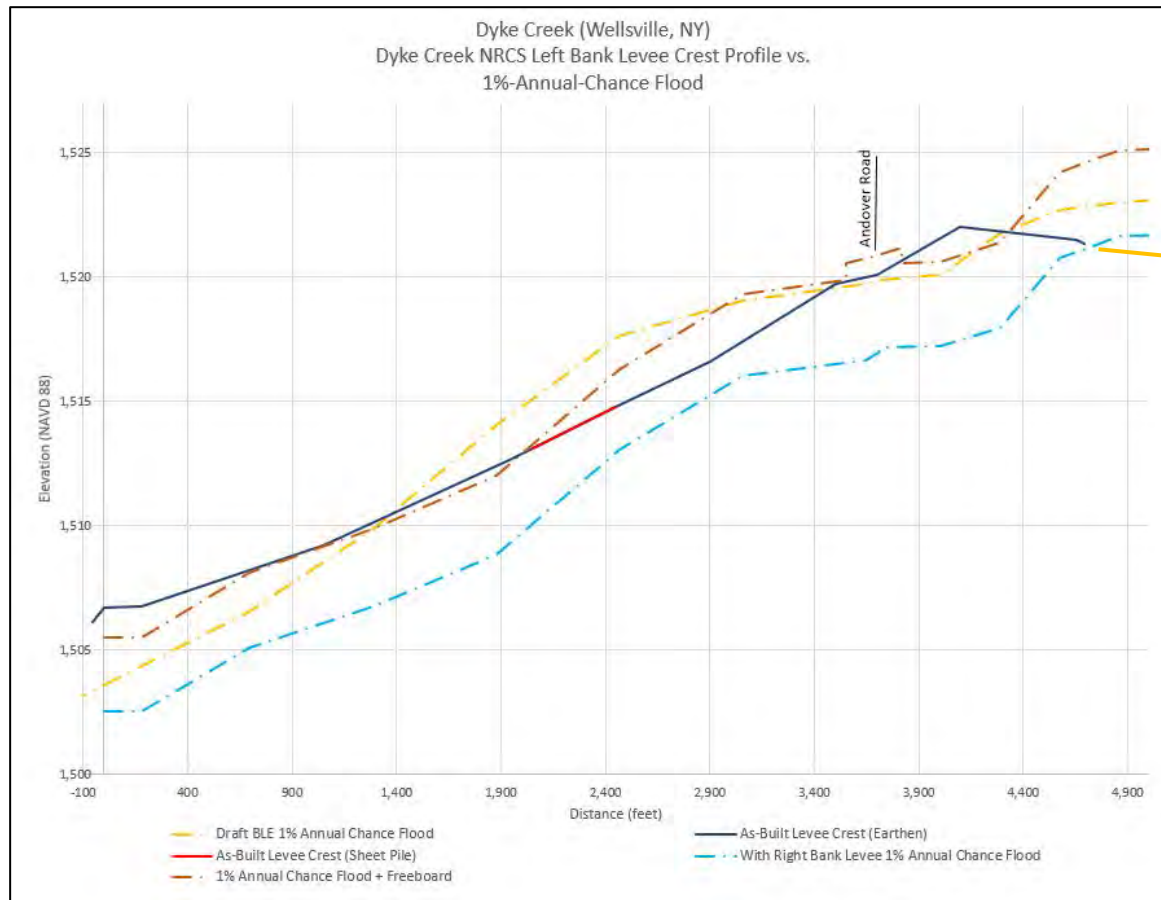
Dyke Creek Watershed Project



FEMA

BLE Water Surface Profile Exhibit

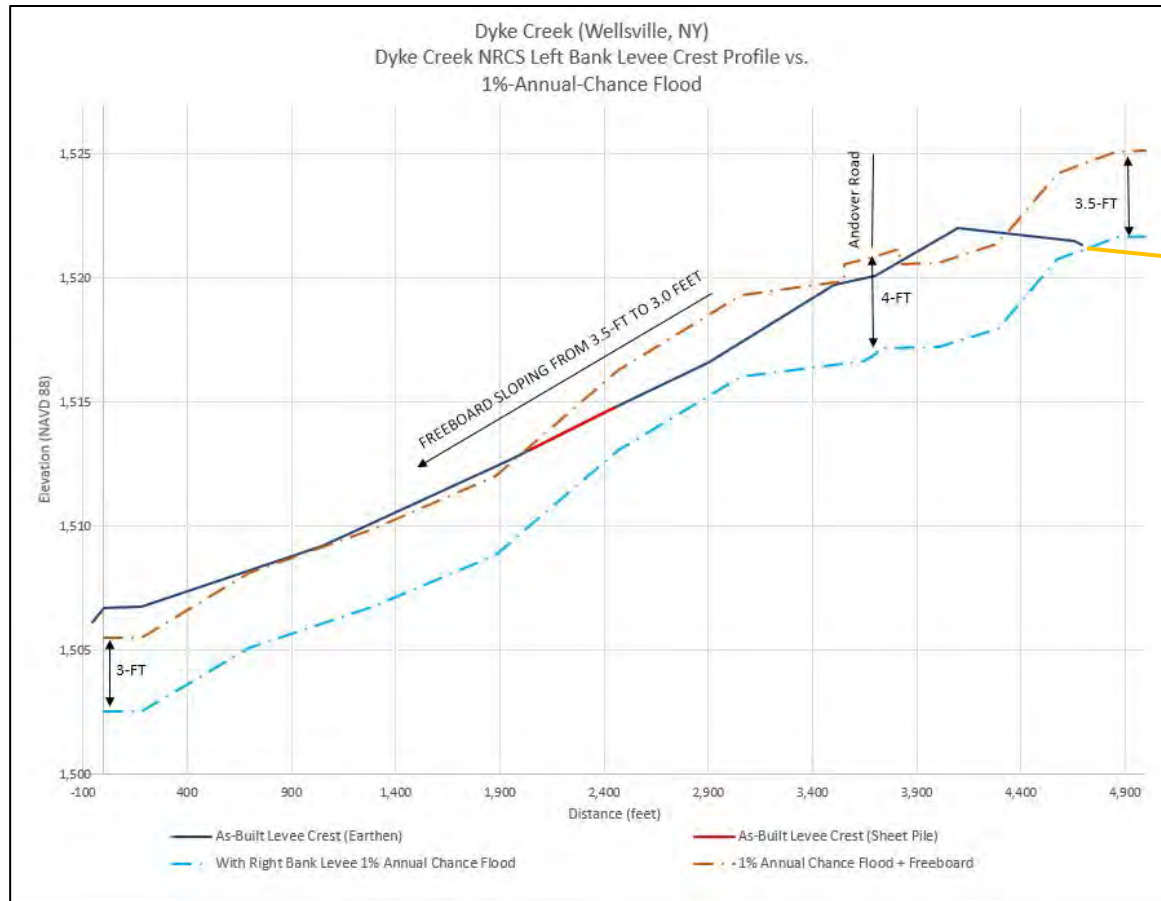
Dyke Creek Watershed Project



FEMA

BLE + Estimated Freeboard Profile Exhibit

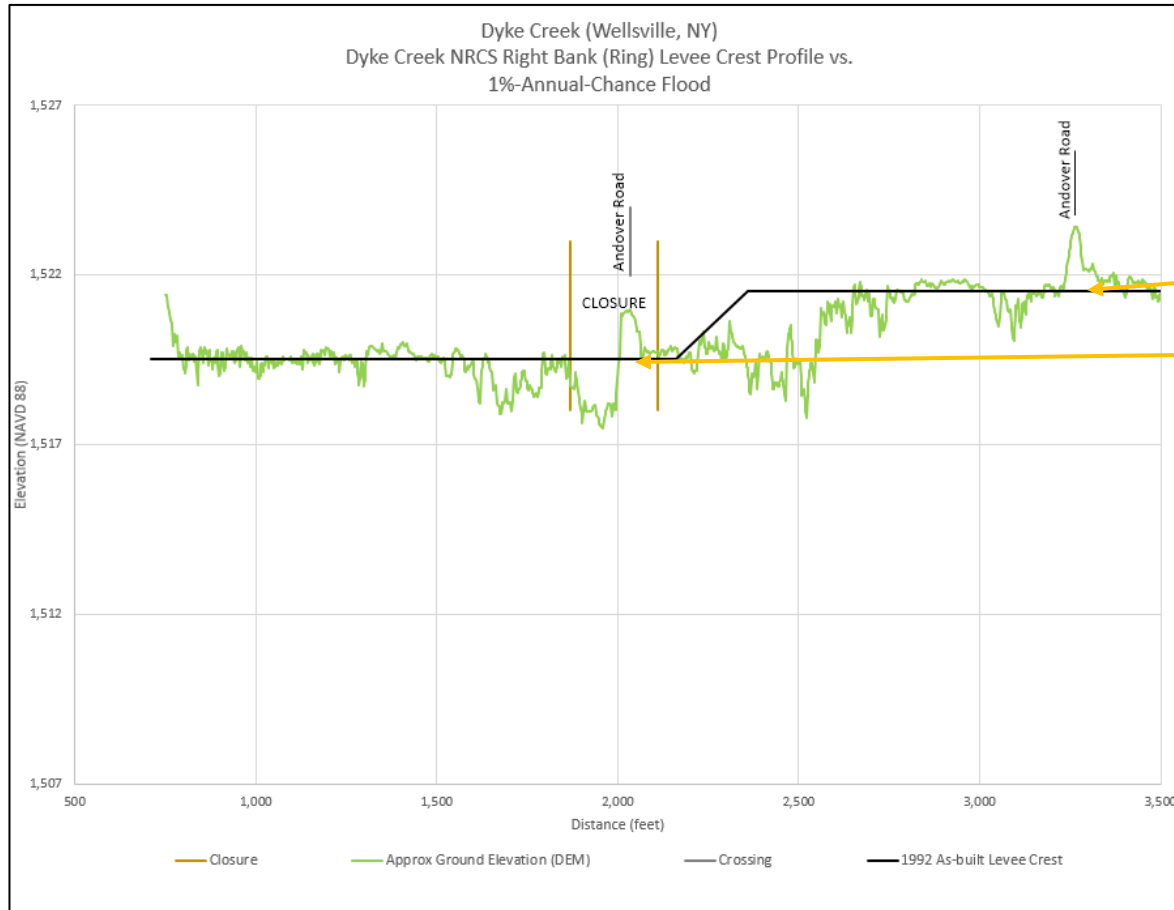
Dyke Creek Watershed Project



FEMA

Approximate Levee Profile Exhibit

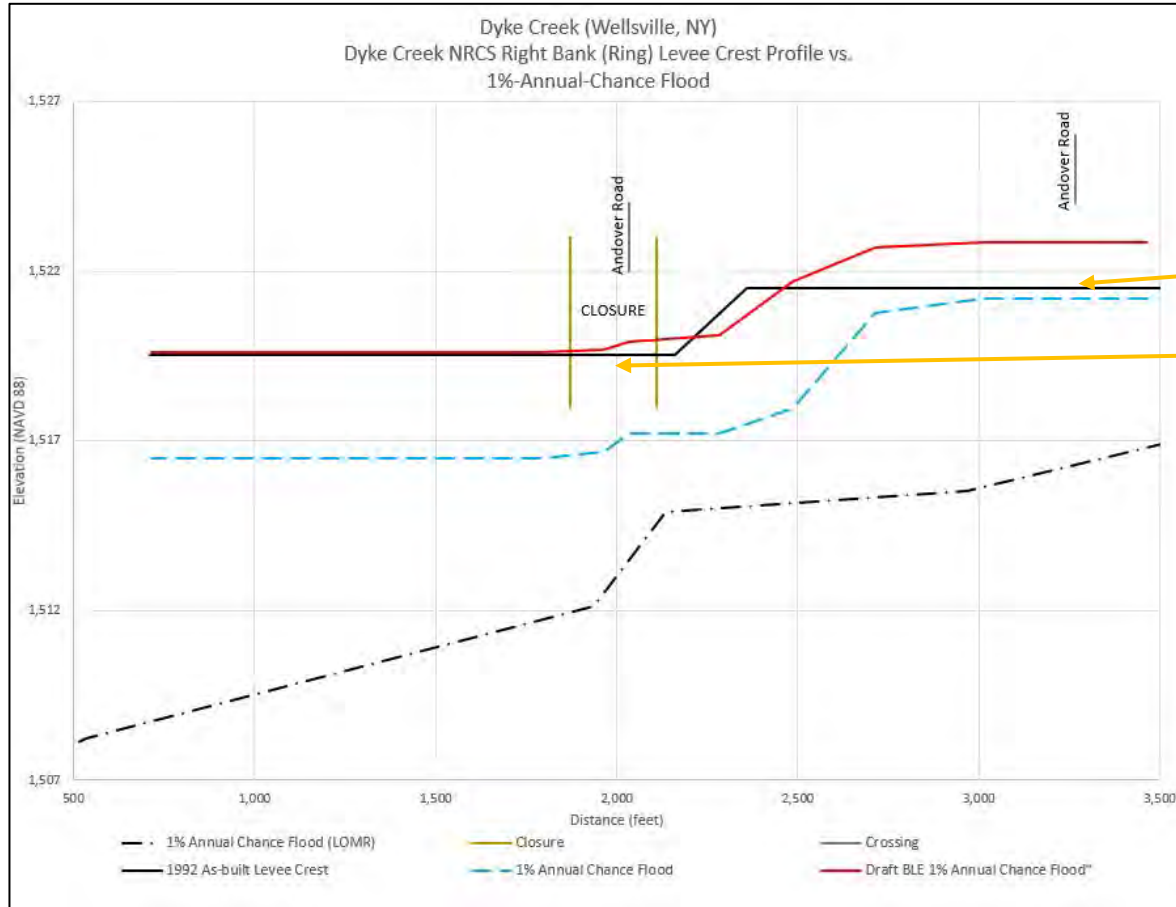
Dyke Creek Watershed Project



FEMA

BLE Water Surface Profile Exhibit

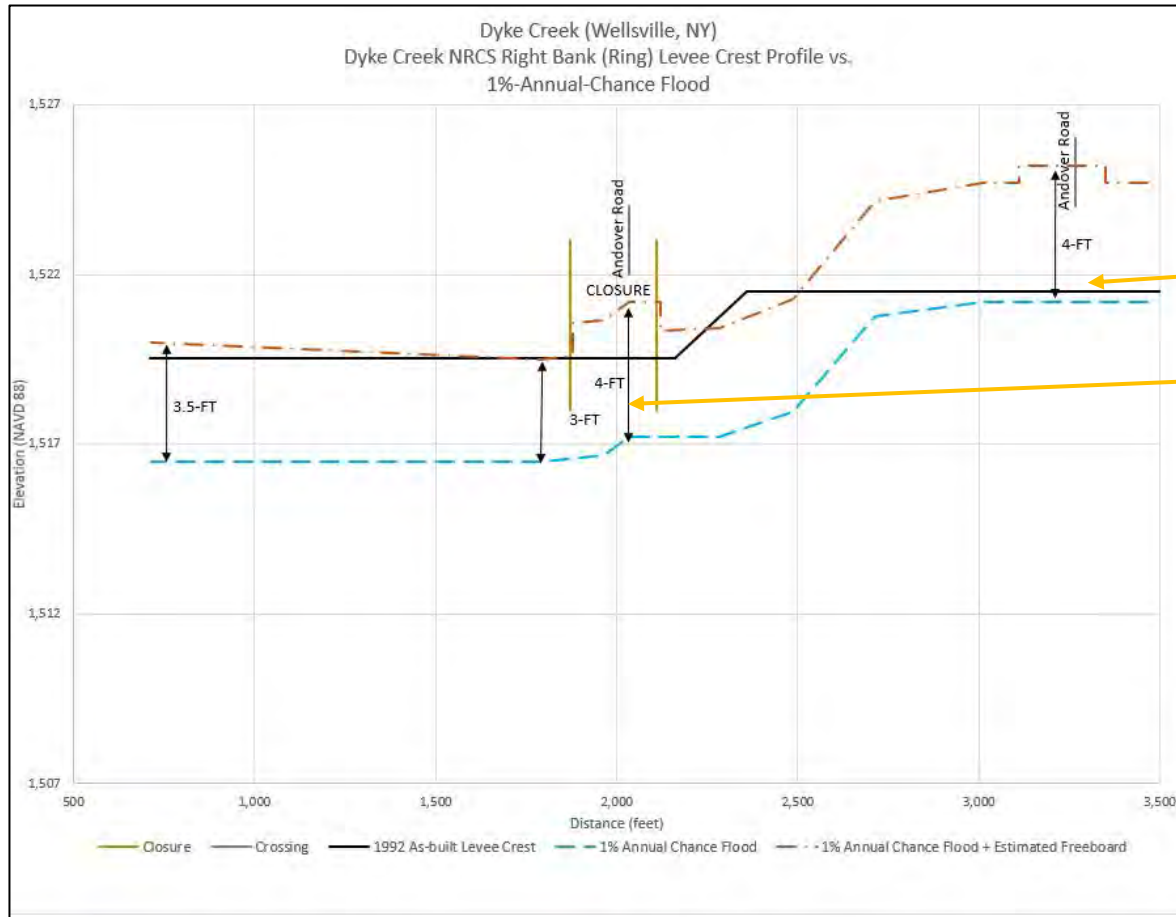
Dyke Creek Watershed Project



FEMA

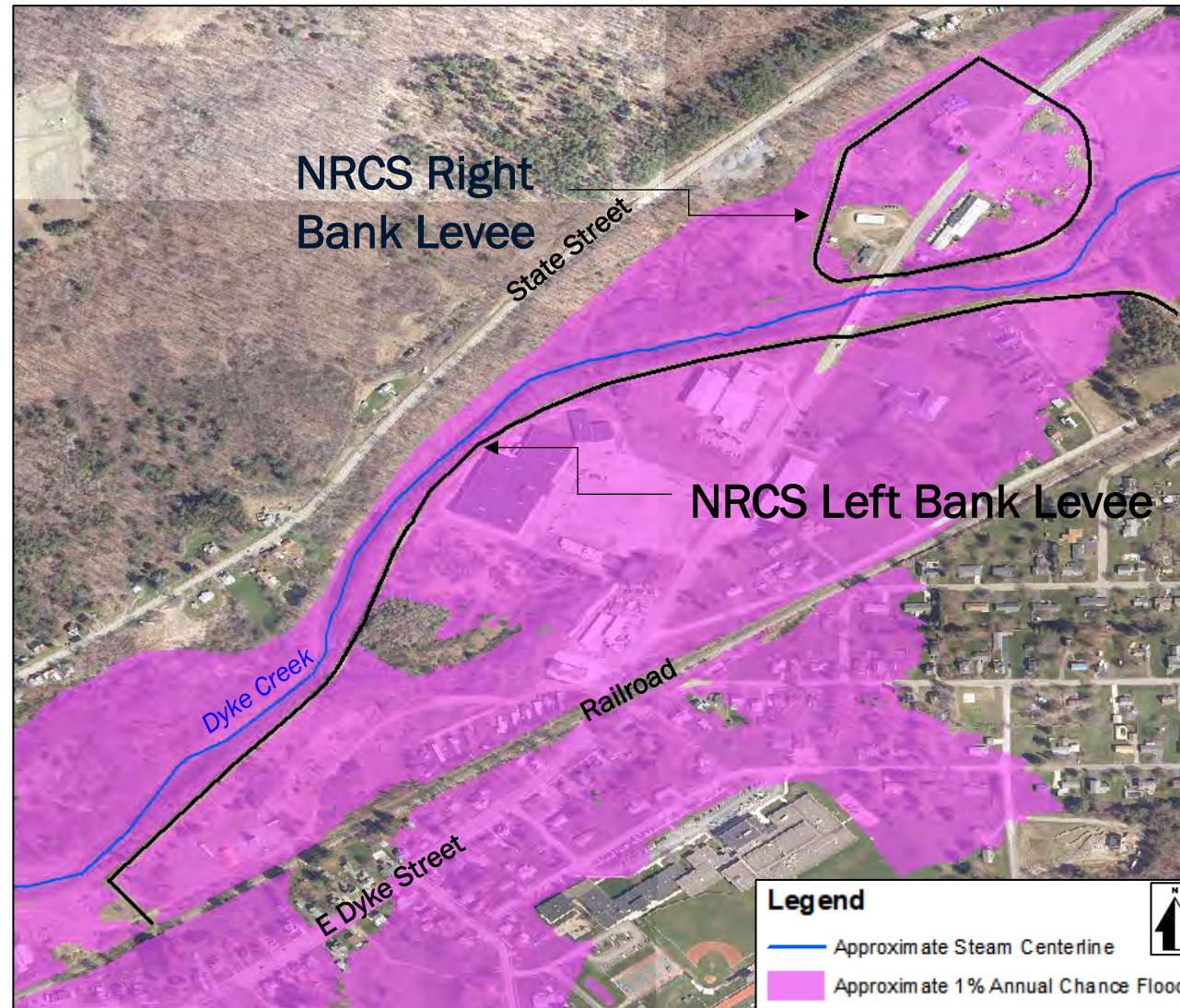
BLE + Estimated Freeboard Profile Exhibit

Dyke Creek Watershed Project



FEMA

Natural Valley Procedure



FEMA

Next Steps



FEMA

FEMA's Role

- FEMA to prepare a Levee Analysis and Mapping plan document that includes:



Summaries
of Data
Collected and
LLPT
Discussions



Results from the
Initial Data
Analysis



Path Forward for
Future Analysis and
Mapping of Flood
Hazard in Levee
Impacted Area



FEMA

LLPT Timeline:

Initial Data Collection and Analyses

April 2019 – Summer 2019

LLPT Touchpoint Calls

June 2019 – Spring 2020

LLPT 3 Meeting

Discuss Levee Analysis and Mapping Plan
~ Winter/Spring 2020

LLPT 1 Meeting

Initial Stakeholder Engagement
June 27, 2019

LLPT 2 Meeting

Review Initial Data Analysis
Today,
February 5, 2020

Levee Analysis and Mapping Plan

~ Spring 2020

Future Flood Hazard Analysis & Mapping
TBD



FEMA

QUESTIONS?

Contact:

Alan Springett, Project Monitor

FEMA Region II

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E-mail: alan.springett@fema.dhs.gov

Stephanie Nurre, Senior Mitigation Planner

STARR II

Phone: 312-262-2284

E-mail: stephanie.nurre@stantec.com



FEMA

Contacts

	Title	Employee	Phone Number
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Regional Support Center	Regional Support Center (RSC) Region II Lead	Curtis Smith, STARR II curtis.smith@stantec.com	(646) 842-8239
	Water Resources Engineer – STARR II	Trevor Cone, STARR II trevor.cone@stantec.com	(212) 330-6157
Outreach	Community Engagement and Risk Communication (CERC) – Resilience Action Partners	Matt Kroneberger matt.kroneberger@ogilvy.com	(212) 237-6373



FEMA



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Thank You

Challenges, Innovation, The way forward

Allegany County, NY Village of Bolivar and Town of Bolivar Levee Flood Hazard Identification

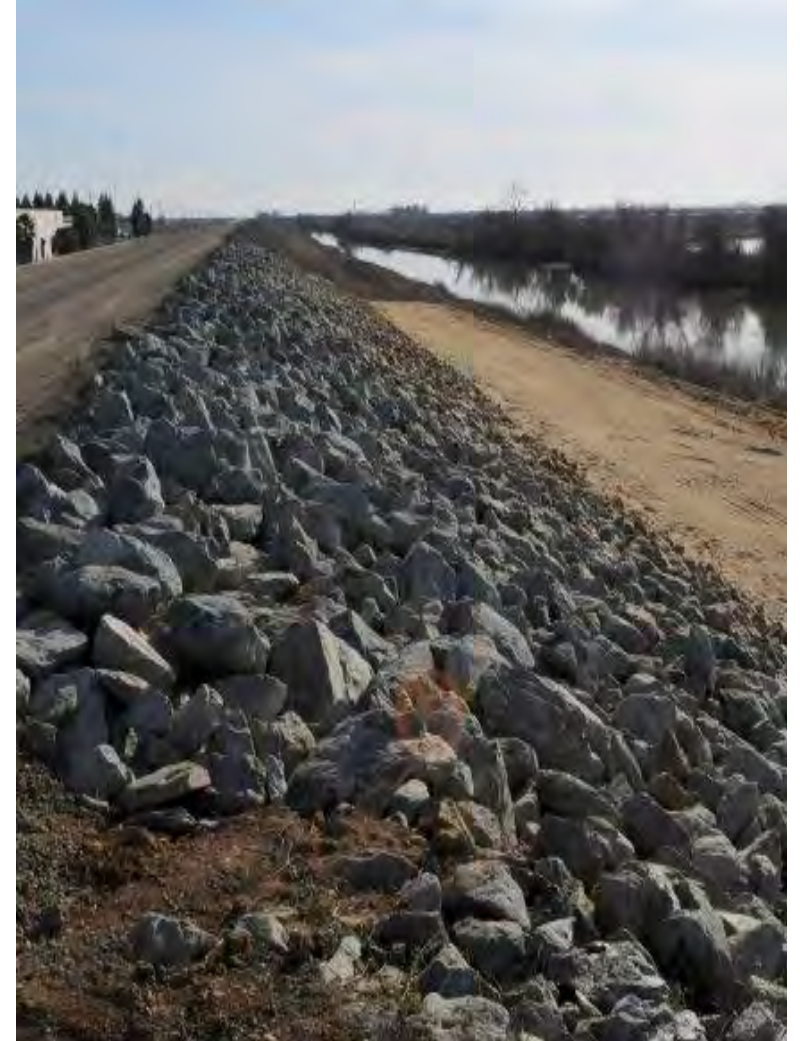
Local Levee Partnership Team (LLPT) Meeting 3
April 27, 2020







FEMA

The Focus Is On Flood Risk

The Federal Emergency Management Agency (FEMA) works with Federal and State partners, local communities and other stakeholders to assess and communicate flood risks in areas impacted by non-accredited levees.



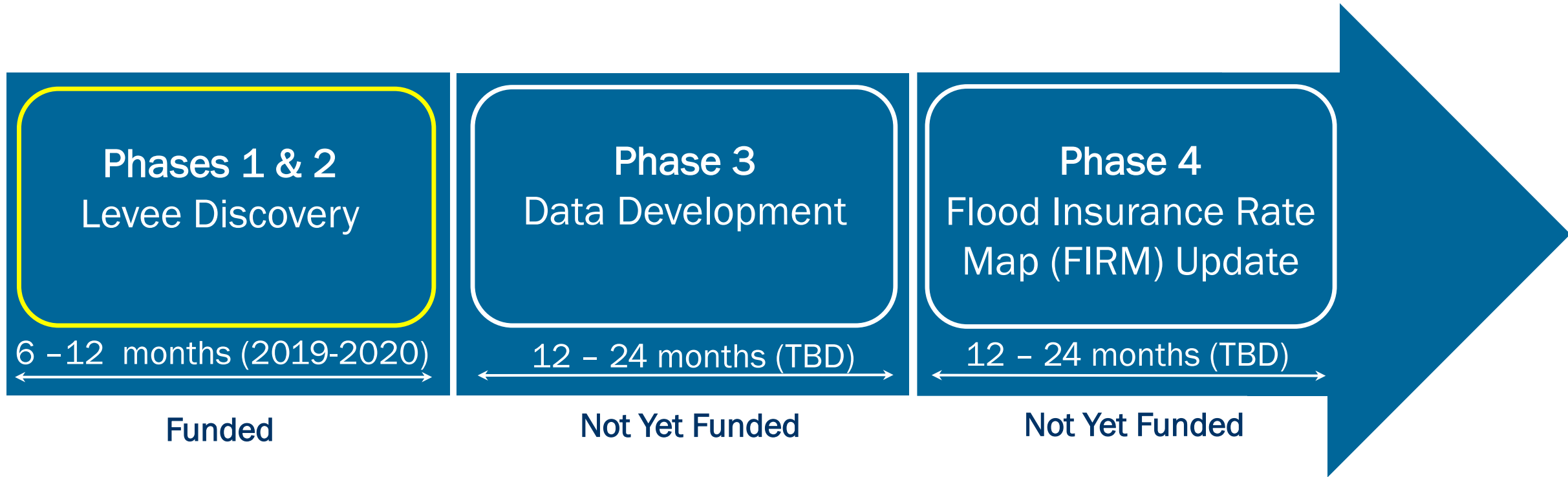
Today's Agenda

1	2	3	4
Allegany County Levee Process Timeline	Draft Levee Plan	Questions?	Contacts
			



FEMA

Allegany County Levee Process Timeline



Phases 1 & 2 – Levee Discovery (Current Phase)

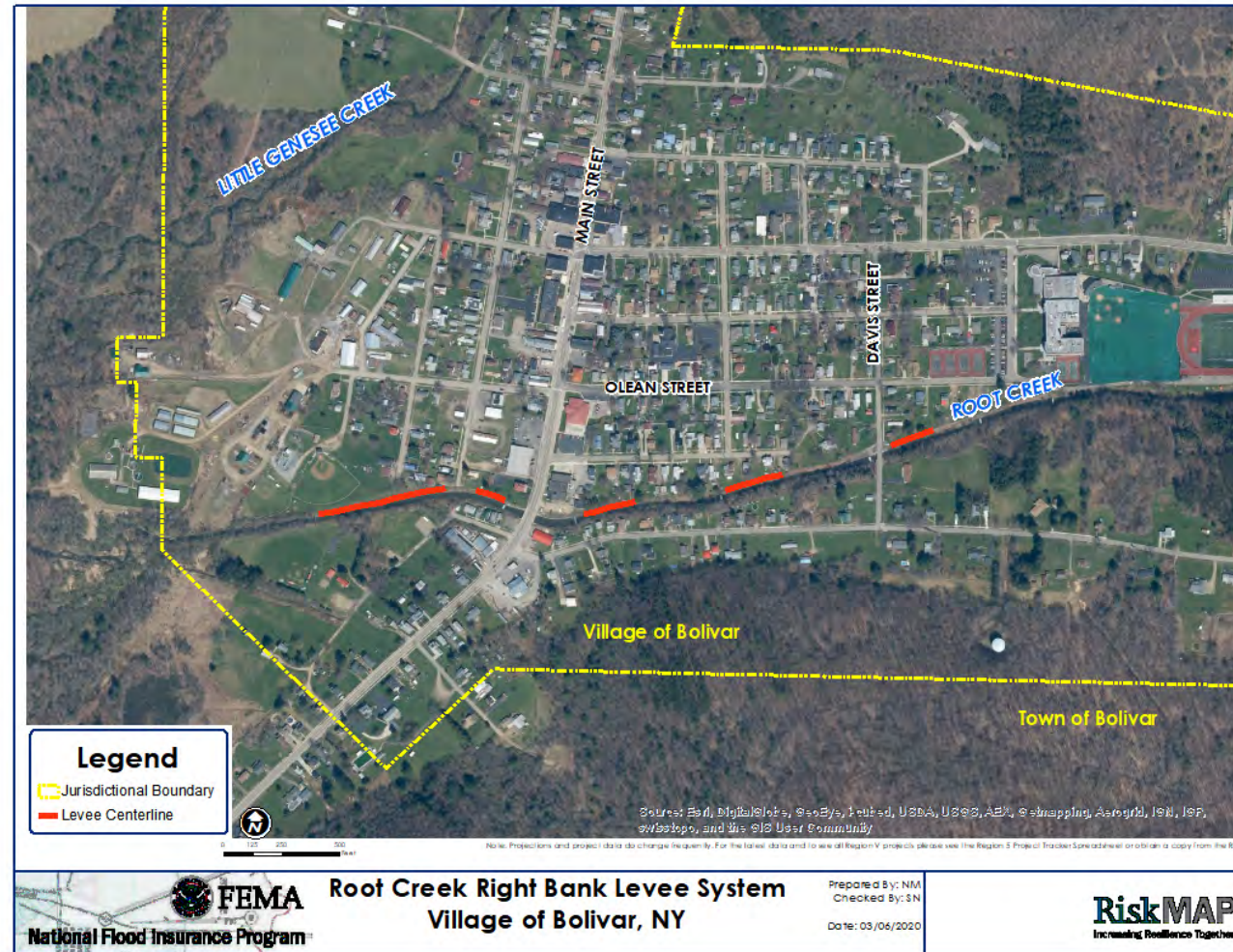


FEMA

Phases 1 & 2 – Levee Discovery

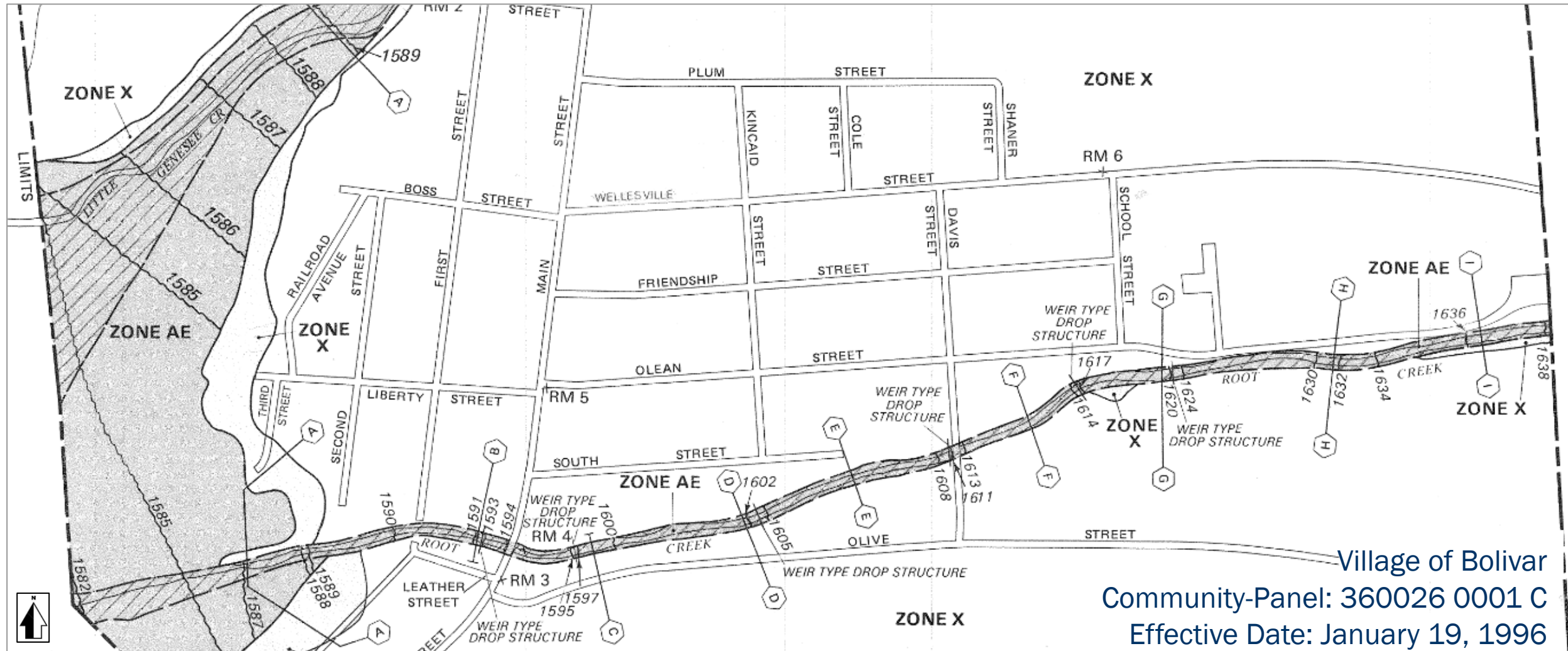
- Typical duration 6-12 months
- Initial levee background research
- Stakeholder engagement and Local Levee Partnership Team (LLPT) coordination
- Collect existing data
- Initial hydrologic and hydraulic analyses
- Prepare Levee Plan
- Mapping for Allegany County

Initial Levee Background Research



FEMA

Effective FIRM



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Stakeholder Engagement & LLPT Coordination

- Initial Stakeholder Engagement Meeting – June 27, 2019
 - Introduction to Levee Flood Hazard Identification Project
 - LLPT Formation
- LLPT Meeting 2 – February 5, 2020
 - Review results of Initial Data Analysis
- LLPT Meeting 3 – Today – April 27, 2020
 - Review Levee Plan

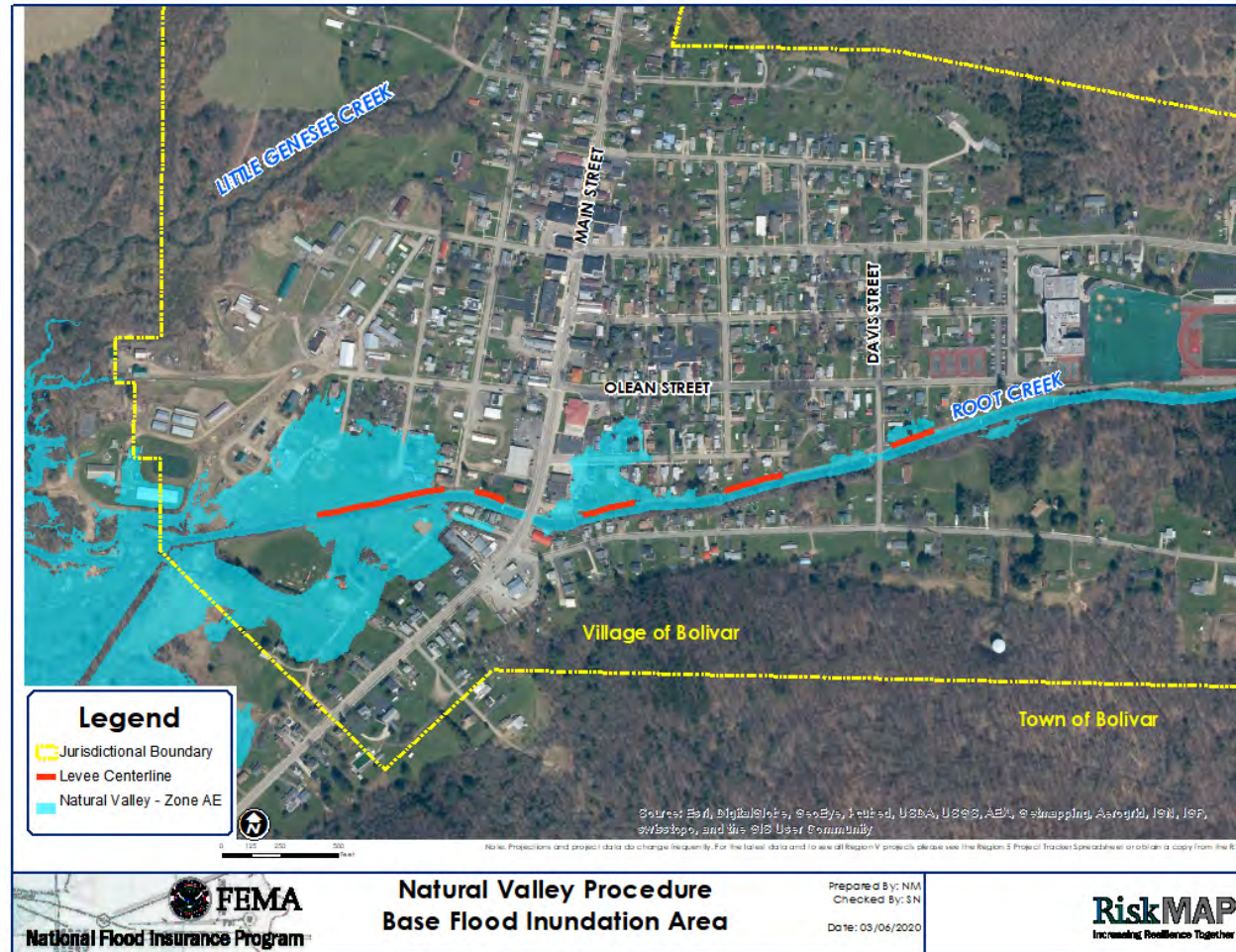
Collect Existing Data

- Base Level Engineering Study - Upper Allegheny River Watershed, STARR II, FEMA
- 2020 Village of Bolivar Flood Damage Reduction Project Emergency Action Plan, Village of Bolivar
- Sharing agreement between U.S. Army Corps of Engineers (USACE) Pittsburgh District and FEMA Region 2

Initial Hydrologic & Hydraulic Analysis

- Upper Allegheny River Watershed Base Level Engineering (BLE) Project
- Modified BLE HEC-RAS hydraulic model
- Levee Profile Exhibit and Freeboard Comparison
- Natural Valley Procedure

Natural Valley Procedure

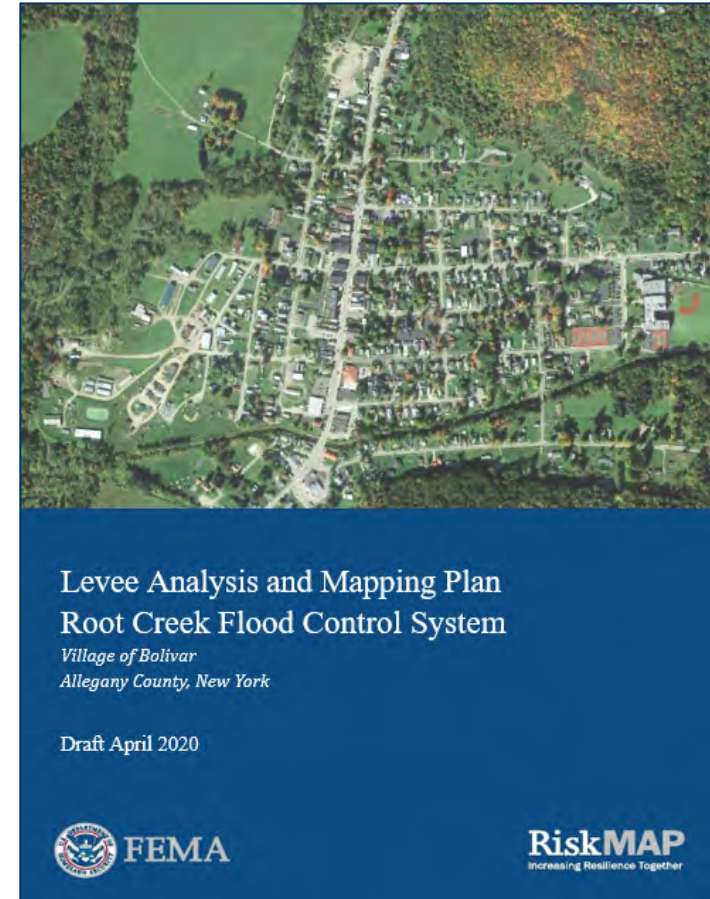


FEMA

Levee Analysis and Mapping Plan

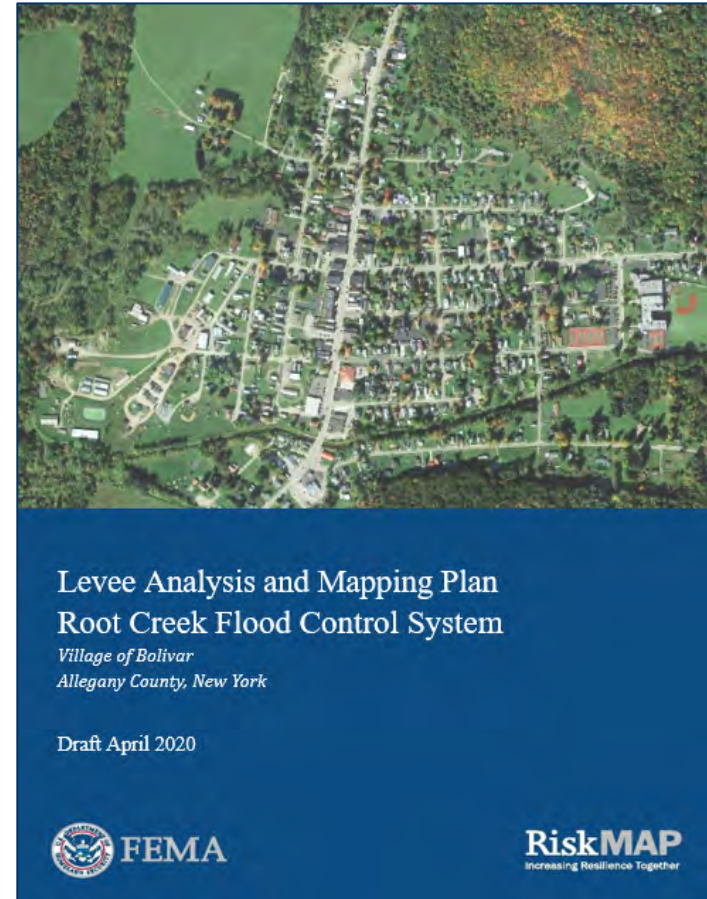
The plan includes the following information:

- Executive Summary
- Levee System Description
- Stakeholder Engagement and Data Collection
- Initial Data Analysis and Findings
 - Freeboard Profile Comparison
 - First-pass hydraulic analysis



Levee Analysis and Mapping Plan

- Potential Analysis Methods
 - Natural Valley Procedure
 - Structural-Based Inundation
 - Overtopping
 - Freeboard Deficient
 - Sound Reach
- Path Forward and Next Steps



Levee Analysis and Mapping Plan

- Appendices:
 - Stakeholder Engagement – LLPT Meeting Information
 - Levee Profile Exhibit
 - Levee Accreditation Checklist
 - Collected Data
 - Initial Data Analysis
- FTP Site Information
 - Browser link: <https://projsftp.stantec.com>
 - Login name: BOLIVAR1711
 - Password: 8134900

Design Criteria

Description: For levee systems to be accredited, documentation to show that adequate design and reasonable assurance that the levee has, and

Section of the NFIP

Checklist for Design Criteria:

<input type="checkbox"/>	Freeboard. The minimum (BFE) all along the length (such as bridges) or within upstream end of a levee requirements (see Paragraph 6.1.1 of the NFIP).
<input type="checkbox"/>	Closures. All openings in the system during operation.
<input type="checkbox"/>	Embankment Protection. Protection against appreciable erosion of result of either currents or waves on levee embankment or fill and subsequent instability.
<input type="checkbox"/>	Embankment and Foundation. Levee embankment shall be designed to prevent expected seepage during operation and shall demonstrate that seepage will not jeopardize embankment stability. Levee is designed and constructed in accordance with the U.S. Army Corps of Engineers Design and Construction Manual.
<input type="checkbox"/>	Settlement Analyses. Settlement analyses and magnitude of future settlement that freeboard will be maintained. Levee system, and construction procedures such as compaction, Mechanics Design—See NFIP.

Meeting the Criteria for Accrediting Levee Systems on Flood Insurance Rate Maps: How-To Guide for Floodplain Managers and Engineers

The National Flood Insurance Program (NFIP) defines a levee system in Title 44, Chapter 1, Section 59.1 of the Code of Federal Regulations (44 CFR 59.1) as a flood risk reduction system that consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices to protect a hydraulically distinct area. Within the NFIP, a levee is a manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

As part of the flood mapping process, the Federal Emergency Management Agency (FEMA), and its State and local mapping partners, review and evaluate levee system data and documentation. Any community and/or other party seeking recognition or continued recognition of a levee system on a Flood Insurance Rate Map (FIRM) must provide FEMA with data and documentation, certified by a registered professional engineer, showing that the levee system is expected to provide 1-percent-annual-chance (base) flood risk reduction.

To be mapped on a FIRM as providing base flood risk reduction, levee systems must meet and continue to meet the NFIP minimum design, operation, and maintenance requirements described in Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations (44 CFR 65.10). FEMA has posted several guidance documents related to levee accreditation, mapping, and other topics. Please access the [Levee Resources Library](#) for updated guidance documents. To help clarify the responsibilities of community officials, levee owners, or other parties seeking recognition of a levee system identified during a study/mapping project, FEMA has posted several [guidance documents](#) related to levee accreditation, mapping, and other related topics. This document provides information regarding how FEMA maps levee systems, a checklist of the types of data and documentation that must be submitted for levee systems to be accredited on FIRMs, and an index of further resources.

A NOTE ABOUT FLOOD RISK AND FLOOD INSURANCE

Levee systems are designed to provide a specific level of protection. They can be overtopped or fail during flood events larger than those for which the system was designed. Levee systems also decay over time, which may increase the likelihood of failure. They require regular maintenance and periodic upgrades to retain their level of protection. When levees do fail, the resulting damage, including loss of life, may be much greater than if the levee system had not been built.

For all these reasons, FEMA strongly encourages people in levee-impacted areas to understand their flood risk, know and follow evacuation procedures, and protect their property by purchasing flood insurance, floodproofing their structure, or taking other precautionary measures. For more information on flood insurance, please visit [FloodSmart.gov](#).

RISK MAPPING, ASSESSMENT, AND PLANNING PROGRAM (RISK MAP)

The Federal Emergency Management Agency's Risk MAP Program delivers quality data that increases public awareness and leads to action to reduce risk to life and property. Risk MAP is a nationwide program that works in collaboration with states, tribes, and local communities using best available science, rigorously vetted standards, and expert analysis to identify risk and promote mitigation action, resulting in safer, more resilient communities.

RiskMAP
Increasing Resilience Together

FEMA

Next Steps in Levee Discovery Phase 2



Review
LLPT to
review and
provide
comments
to FEMA by
May 29



Address
comments
received from
LLPT on Draft
Levee Plan



Finalize
Plan and
Distribute
Levee Plan

Share any
additional data
gathered



Inform
LLPT of anticipated
timeline for future
FEMA flood study
efforts as
information
becomes available



FEMA

Allegany County Mapping Status Update

- FEMA **has not scheduled** a remapping initiative for Allegany County. Initiative could begin within the next 5 years.
- The 1970s and 1980s-era Flood Insurance Study (FIS) report and FIRMs remain the effective regulatory information.
- Non-regulatory BLE Project and Scoping of Priorities results are being finalized and will be made available to communities in Spring 2020.
- BLE Project results do not replace the effective FIS report and FIRMs but can be adopted for floodplain management purposes as best available data.

Phase 3 – Data Development



FEMA

Phase 3 – Data Development

- Part of traditional Flood Insurance Study
- Typical duration 12- 24 months
- Kick-off, Hydrology & Hydraulics meetings held with community
- Levee sponsor/FEMA coordinate on levee accreditation or LAMP approach

Phase 3 – Data Development

- Work Maps show draft flood hazards
- Any future mapping updates will be based on available funding
- No date or year has been determined for when a new study will be initiated

Phase 4 – FIRM Update



FEMA

Phase 4 – FIRM Update

- Preliminary FIRMs prepared and distributed to community
- Typical duration 12- 24 months
- 90-day appeal period
- Community has 6-months to adopt new maps for all regulatory and flood insurance purposes
- Once a new study is completed, flood hazard reduction associated with 44 CFR §65.10-compliant data may still be provided:
 - during the 90-day appeal period, or
 - later through the LOMR process.

QUESTIONS?

Contact:

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FEMA Region II

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Stephanie Nurre, Senior Mitigation Planner

STARR II

Phone: 312-262-2284

E-mail: stephanie.nurre@stantec.com



FEMA

Contacts

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Regional Support Center	Regional Support Center (RSC) Region II Lead	Curtis Smith, STARR II curtis.smith@stantec.com	(646) 490-3929
	Water Resources Engineer – STARR II	Trevor Cone, STARR II trevor.cone@stantec.com	(212) 330-6157
Outreach	Community Engagement and Risk Communication (CERC) – <i>Resilience Action Partners</i>	Matt Kroneberger matt.kroneberger@ogilvy.com	(212) 237-6373



FEMA



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Thank You

Challenges, Innovation, The way forward