

600 – Warning and Response



FEMA



600 – Warning and Response

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600 – Warning and Response

Threat recognition



Warning



Operations



Critical facilities



610 – Flood Warning and Response

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610 Flood Warning and Response

611.b Activity credit criteria

- (1) First four elements: must have credit from each
- (2) Description of the flood hazard
(Could be in floodplain management/mitigation plan)
- (3) Flood inundation map
- (4) Adopted warning and response plan
- (5) Outreach project

610 – Flood Warning and Response

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(5) Outreach project

- (a) Annual notice to everyone in the community
- (b) Annual notice to everyone in the floodplain
- (c) Another approach developed in the PPI
- (d) If ≥ 3 days advance notice \rightarrow watches & warnings OK
- (e) Different flooding sources \rightarrow different types of projects

Stay Informed: Understanding the flood warning system

Locally, the Chatham Emergency Management Agency (CEMA) manages the flood warning system. Once CEMA receives a potential dangerous warning, sirens will be activated as well as the Local Emergency Information Network system which interrupts television and radio programs to give further instructions. With 95% of Chatham County's population covered by an emergency warning siren, CEMA can activate individual siren sites in the immediate area to alert individuals who are not near a TV or radio. Information can also be heard on the NOAA weather radio broadcast at frequency 162.40. Local evacuation routes can be found in the phone book. For additional information, contact CEMA at 912-201-4500 or visit the Web site at www.chathamemergency.org.

Flood Warning System: know your terms

Flood Watch: *Be on the lookout for flooding*

Flood Warning: *Flooding is occurring*



610 – Flood Warning and Response

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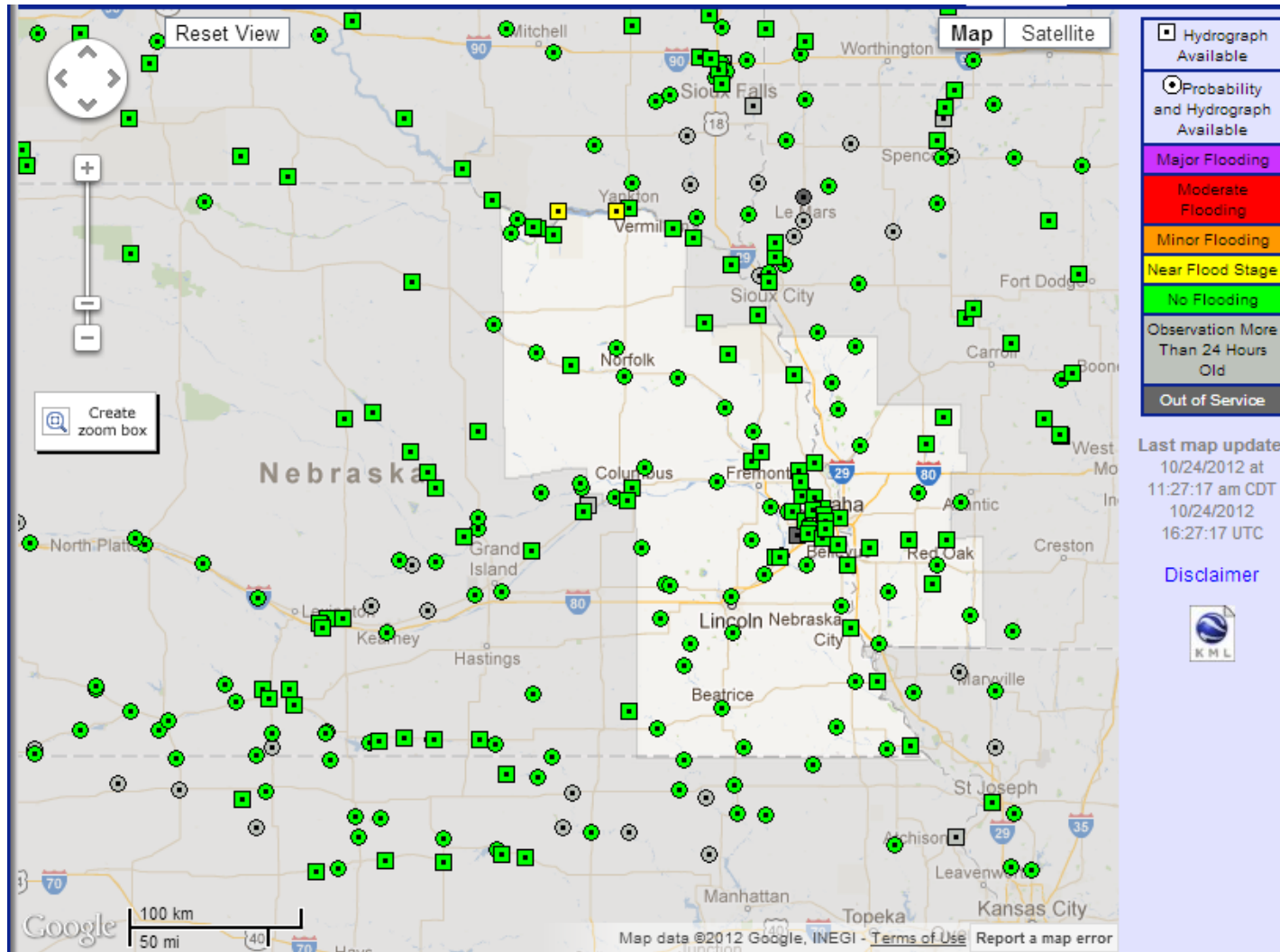
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- (5) Outreach project
- (6) Annual exercise and evaluation

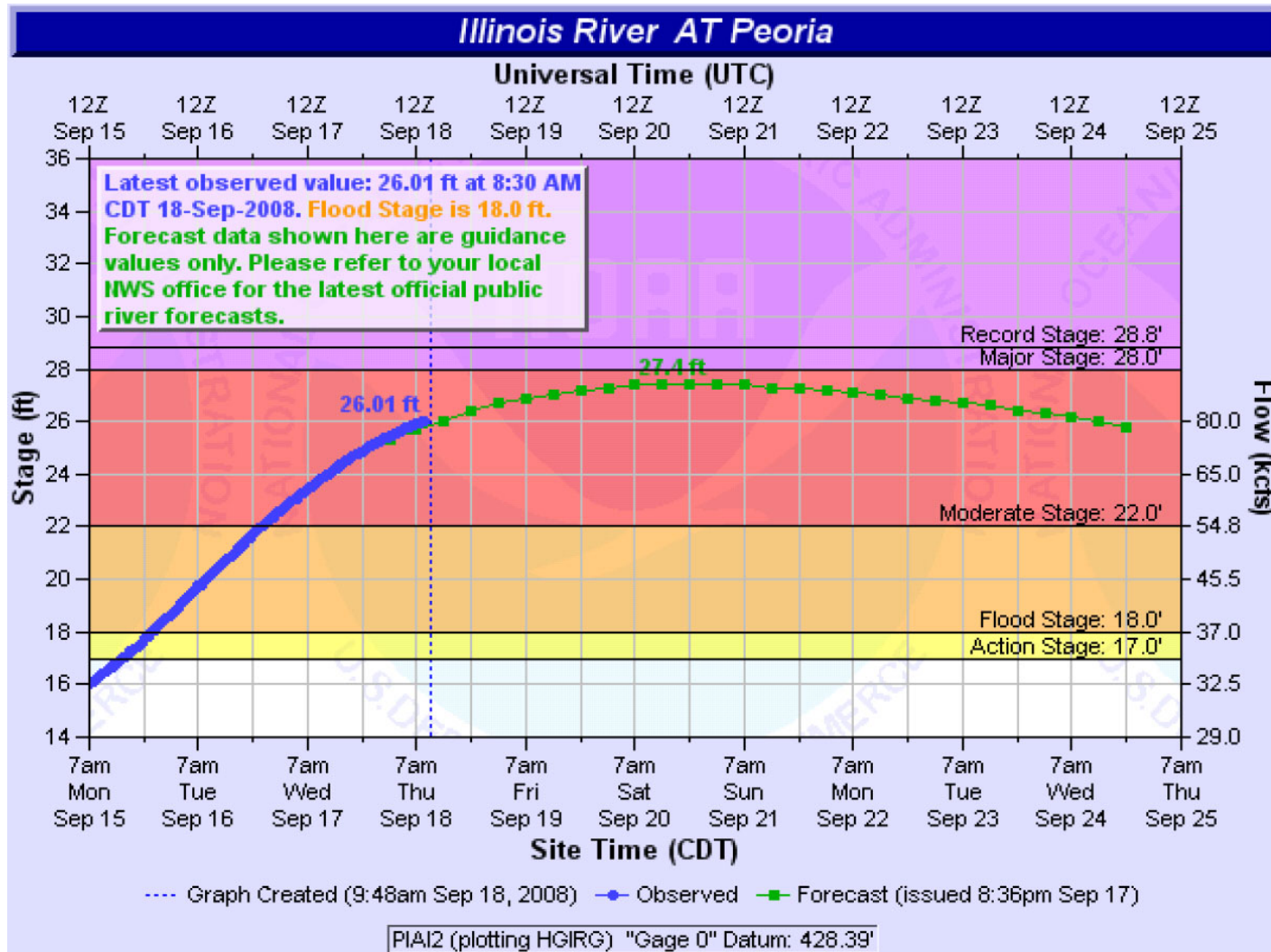
610 – Flood Warning and Response



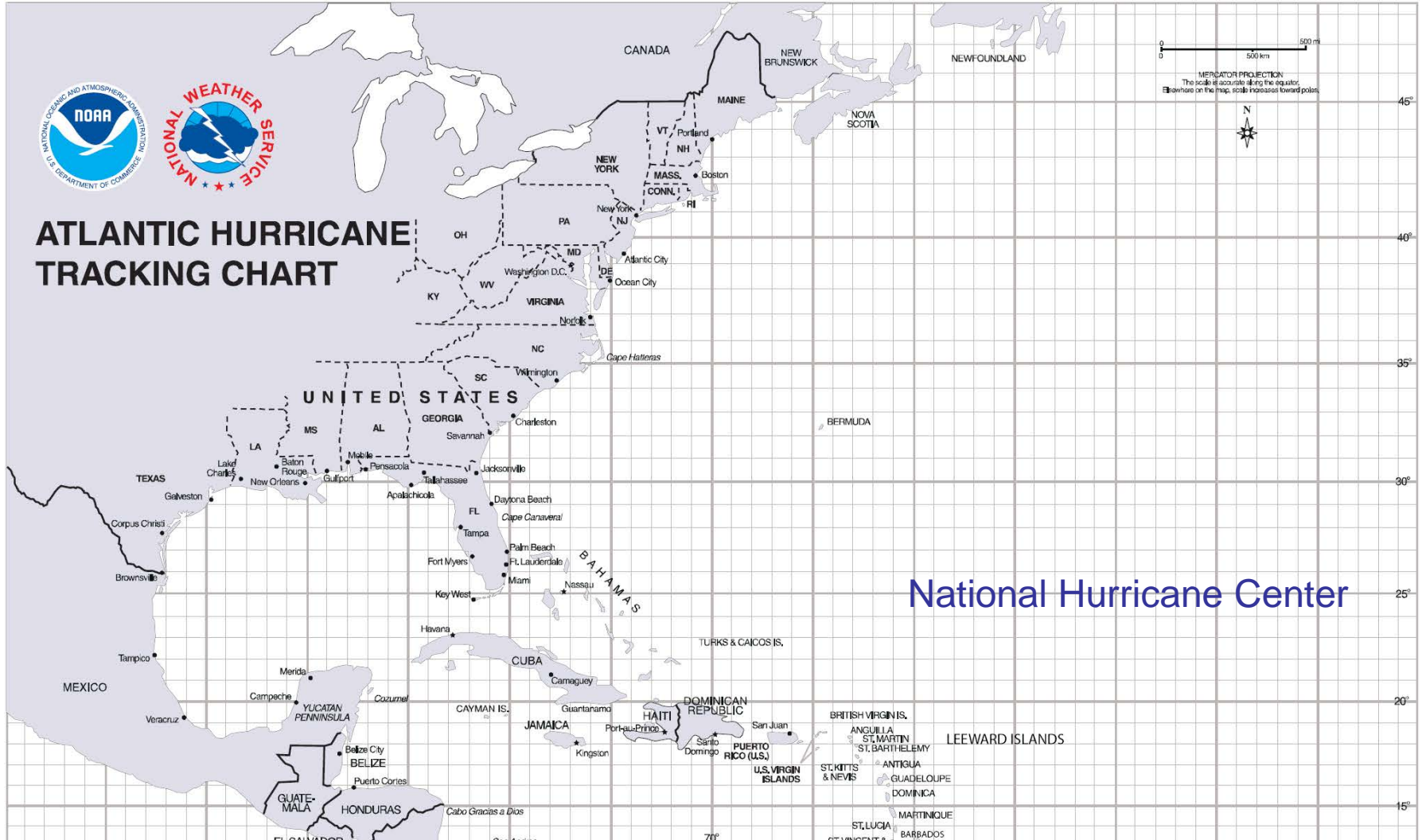
610 – Flood Warning and Response



610 – Flood Warning and Response



610 – Flood Warning and Response



610 – Flood Warning and Response

Manual Pages 610-5 – 6

612.a Flood threat recognition system (FTR)

Level 1: Manual system

Level 2: Automated alarm: flood is coming

Level 3: Automated warning: predicted time and crest

Credit criteria

- (1) Meet activity credit criteria
- (2) System for at least one place in community
- (3) Keyed to flood inundation map, showing what will be affected



610 – Flood Warning and Response

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612.a Flood threat recognition system (FTR)

Documentation

(1) At visit

- (i) Hazard description
- (ii) Flood inundation map
- (iii) Plan (and adoption documentation)
- (iv) Description of the FTR system
- (v) Maintenance procedures
- (vi) Impact adjustment map

(2) At visit and recertification:

- (a) Outreach project
- (b) Report on annual exercise

CID: _____ Community: _____ Co.: _____ State: _____

Activity 610 (Flood Warning & Response) Documentation Checklist

NEW APPLICATION MODIFICATION CYCLE DOCUMENTATION

Provide this checklist and the following for each item checked:

- (1) A CD with the documents. Note the file name and the appropriate pages and section numbers, or
- (2) The URL for on-line documents with the appropriate pages and section numbers noted here, or
- (3) A paper copy of the documents with the appropriate acronym marked in the margin.
- (4) A copy or URL link to the Comprehensive Emergency Management Plan, Emergency Management Plan, or similar plan through which the community is applying for Activity 610 credit.
- (5) If the community is included in another jurisdiction's plan (which implements a multi-jurisdictional flood warning program), then:
 - (a) A copy of a resolution or memorandum of agreement that specifies the community's responsibilities must be included, or
 - (b) A statement from the applicant community's Emergency Manager or a similar community program designee must be submitted which lists those flood warning and response activity elements that are undertaken by the applicant community and those activities that are undertaken by the other jurisdiction on behalf of the applicant community.

	Emergency Manager	CRS Coordinator
Name		
Title		
Address		
Phone		
E-mail		

Form Completed By: _____ Date: _____

Comments: _____

610 Documentation Checklist 5 August 2014

610 – Flood Warning and Response

Get
the warning out



FEMA



610 – Flood Warning and Response

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612.b Emergency warning dissemination (EWD)

Credit criteria

- (1) Meet activity credit criteria
- (2) Must reach people in a timely manner
- (3) Testing

Credit points

- ✓ Cumulative
- ✓ Max: 75

EWD 5 = 10 points, if the Emergency Alert System through all channels/stations with pre-scripted draft messages is used

EWD 6 = 15 points, if telephone warning/ enhanced telephone notification is used

EWD 7 = 10 points, if cable television override systems are used

EWD 8 = 10 points, if public AM radio transmitters used for public announcements are used

610 – Flood Warning and Response

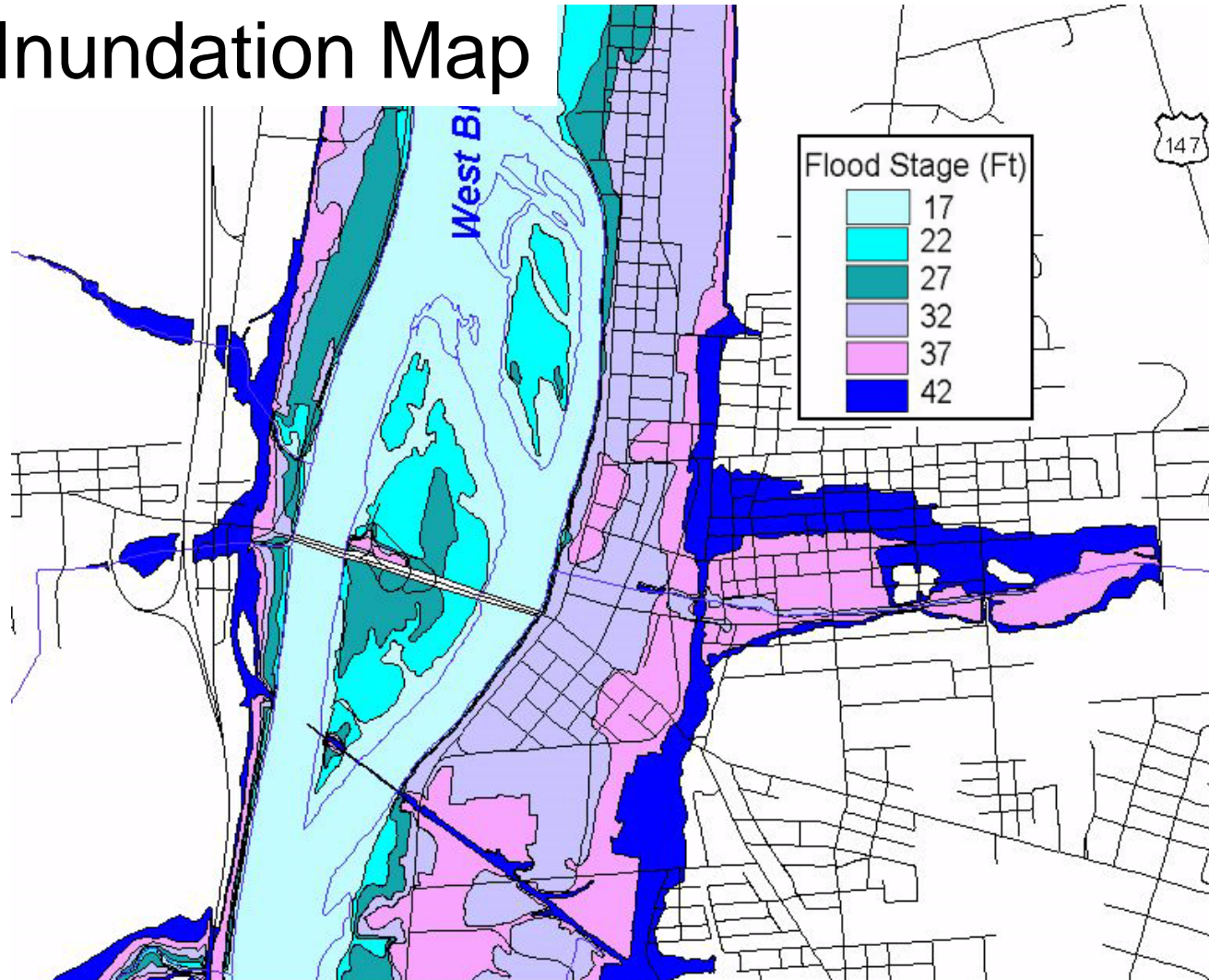


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610 – Flood Warning and Response

Flood Inundation Map

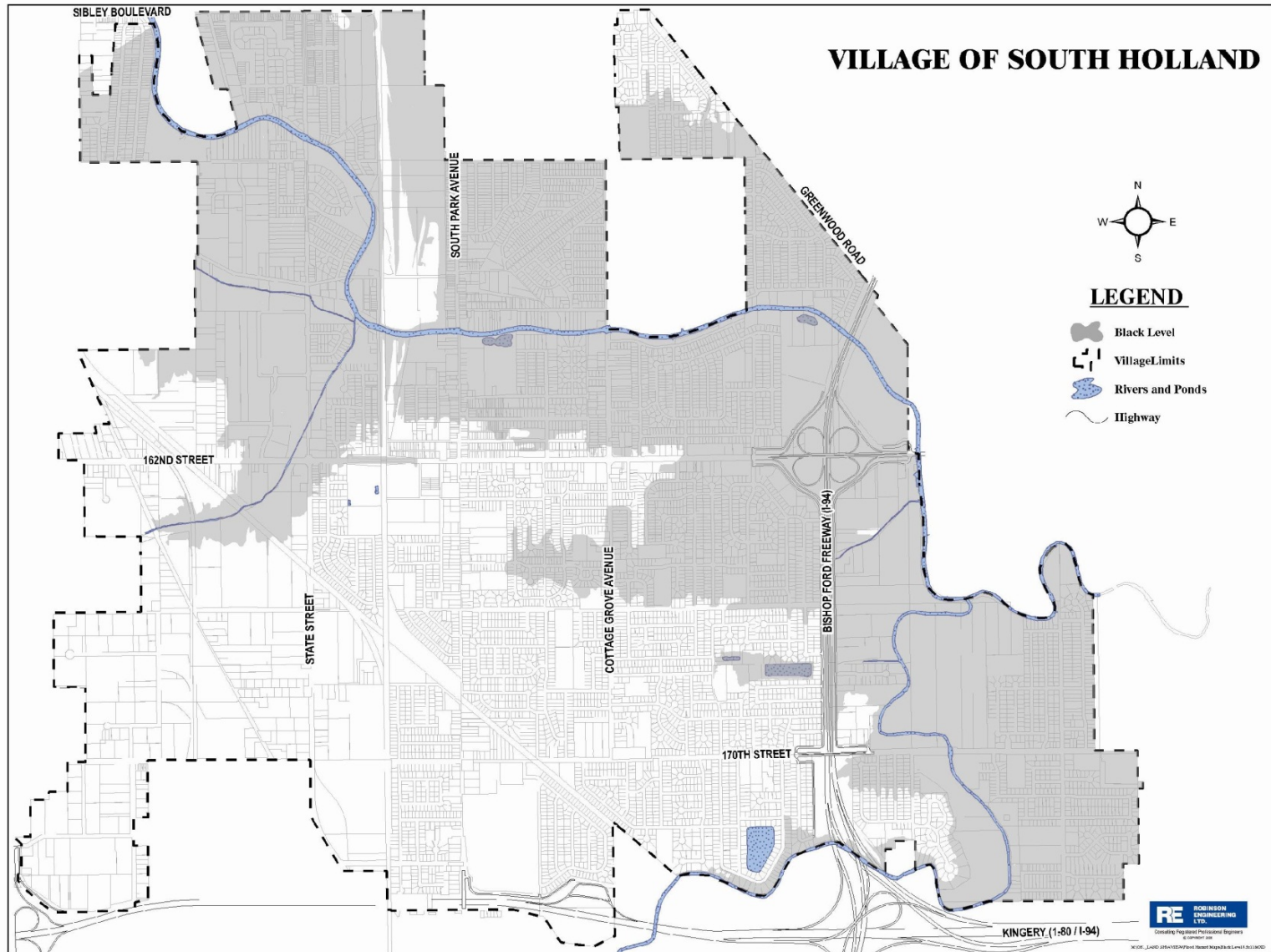


610 – Flood Warning and Response

			← 596.0 – Blue level
20.8 --	-- 595.8	11/27/90	
20.2 --	-- 595.2	6/14/81	
20.1 --	-- 595.1	7/14/57	
20.0 --	-- 595.0	7/20/96	← 595.0 – Orange level
19.6 --	-- 594.6	12/3/82	
19.4 --	-- 594.4	10-year flood	
19.2 --	-- 594.2	4/6/47	
19.1 --	-- 594.1	2/21/97	
19.0 --	-- 594.0	Water reaches buildings on Drexel	↖ 594.0 – Green level
18.6 --	-- 593.6	6/2/89	
18.2 --	-- 593.3	10/10/54	
18.0 --	-- 593.0	Thorn Creek begins to cover 170th Street	
17.9 --	-- 592.9	2/24/85, Water covers Riverview and Drexel	
17.7 --	-- 592.7	12/27/65	
17.0 --	-- 592.0	Flood warning issued	
16.0 --	-- 591.0	Flood watch starts	



610 – Flood Warning and Response



610 – Flood Warning and Response

← 596.0 Public Works

Flood
Stage
Elevation
Frequency (2000 FIS) *
Number of homes affected **
Other structures affected **
Critical facilities affected **
Streets to be closed **
* The flood response levels do not change
** Summary data taken from Attachment E

Primary areas of responsibility: closing off flooded streets, protecting critical facilities, clean up, non-building damage assessment

Flood Response Duties				
Flood Threat	Action	Staff	Equipment	Supplies
Green	Check in to the ICC	Director, Deputy Director, Water Foreman	Computer, telephone	
	Check flap valves on the riverbank for operability	1 employee	1 truck, binoculars	
	Set out barricades at designated locations (see Attachment E *)	3 two-person crews	3 trucks and trailers	Barricades for 32 streets
Orange	Do all lower level activities			
	Set out barricades at designated locations (see Attachment E *)	4 two-person crews	4 trucks and trailers	Barricades for 57 streets
Yellow	Contact Eisenhower School to determine if help is needed	Deputy Director	Cell phone	
	Set out sand and sandbags on public property at (in order): – Pacesetter Park – Gowans Park – Veterans Park	1 operator 2 drivers	Wheel loader 2 dump trucks	8 yards of sand, 100 bags per truck
	Do all lower level activities			
Blue	Set out barricades at designated locations (see Attachment E *)	4 two-person crews	4 trucks and trailers	Barricades for 84 streets
	Contact Gibson Chevrolet and Truck O Matic to determine if help is needed	Deputy Director	Cell phone	

17.0 -- -- 592.0 Flood warning issued

16.0 -- -- 591.0 Flood watch starts

610 – Flood Warning and Response

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612.c Flood response operations (FRO)

Credit criteria

- ✓ Describe the tasks to be taken at each flood level

Credit points

- ✓ More details = more points

FRO 3 = 28 points, if specific actions are keyed to the different flood levels shown on the flood inundation map

FRO 4 = 10 points, for maintaining a database of people with special needs that require evacuation assistance when a flood warning is issued and for having a plan to provide transportation to secure locations

FRO 5 = up to 30 points, if the plan includes a summary of



610 – Flood Warning and Response



FEMA



610 – Flood Warning and Response

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612.d Critical Facilities Planning (CFP)

Credit criteria

- ✓ CFP1 is a prerequisite
- ✓ CFP1: List of critical facilities, warning needs
- ✓ CFP2: Coordinated warning and response plans

Credit points

CFP1 = up to 25 points

CFP2 = up to 50 points



610 – Flood Warning and Response

Manual Pages 610-17 – 18

612.e StormReady community (SRC)

Credit criteria

- (1) Meet activity credit criteria
- (2) Be designated by the National Weather Service

www.nws.noaa.gov/stormready/

Credit points

SRC = 25 points



610 – Flood Warning and Response

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612.f TsunamiReady community (TRC)

Credit criteria

- (1) Meet activity credit criteria
- (2) Be designated by the National Weather Service
- (3) Meet the hazard mapping requirements in *CRS Credit for Mitigation of Tsunami Hazards*
- (4) Adopted tsunami hazards operations plan

Credit points

SRC = 30 points



610 – Flood Warning and Response

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613 Impact adjustment

$r = \frac{\text{number of buildings affected by the element}}{\text{number of buildings in the SFHA (bSF)}}$



$$(1) r_{FTR} = \frac{b_{FTR}}{b_{SF}}$$

$$(2) r_{EWD} = \frac{b_{EWD}}{b_{SF}}$$

$$(3) r_{FRO} = \frac{b_{FRO}}{b_{SF}}$$

610 – Flood Warning and Response

Questions?

Threat recognition



Warning



Operations



Critical facilities



610 – Flood Warning and Response

600 Series (Warning and Response)

Assignment

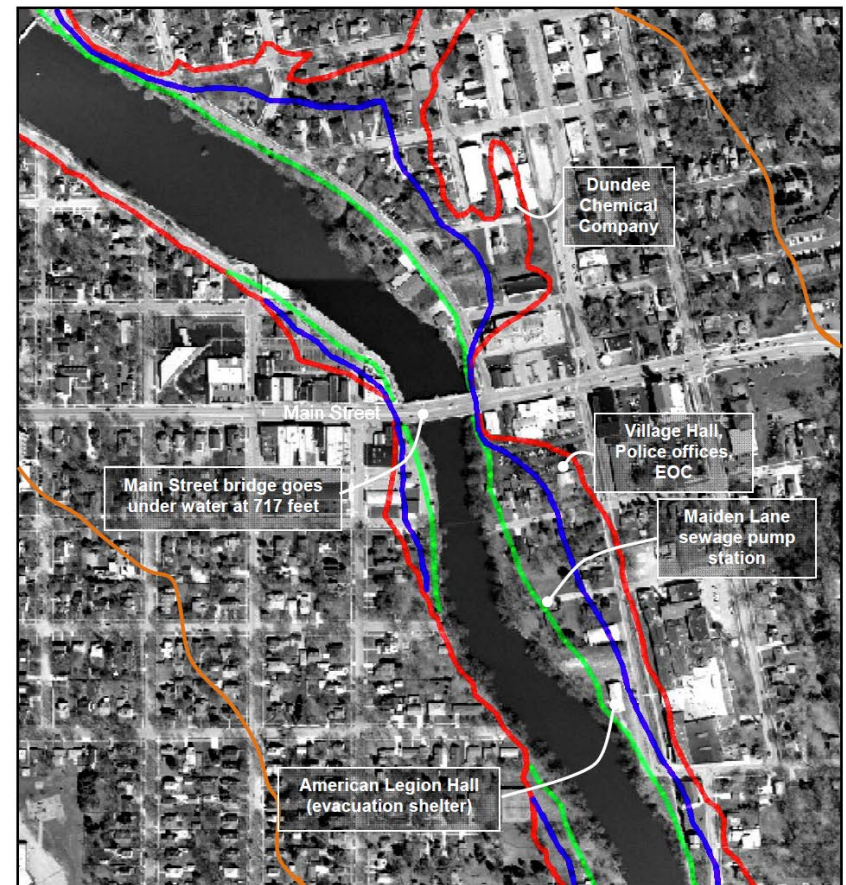
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A dispatcher monitors the Weather Service notices 24-hours a day
and provides a one day's warning time.

There is no system that forecasts flooding on Powell Creek or

There is a state-owned dam at McHenry, 20 miles upstream
of Fox Lake. A dam failure would exceed the level of a 100-year
flood. If provided communities with a rough map of where such a flood
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Currently, the flood annex to the Emergency Operations Plan
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Fox River Flood Inundation Map

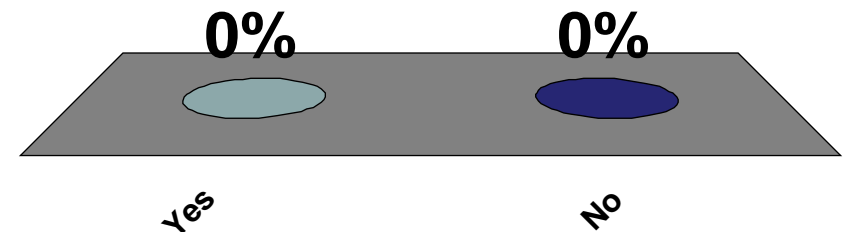
610 – Flood Warning and Response

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Assignment #1. Does Dundee's flood response program meet Activity 610 credit criterion (3) (Section 611.b.(3))?

A. Yes

B. No



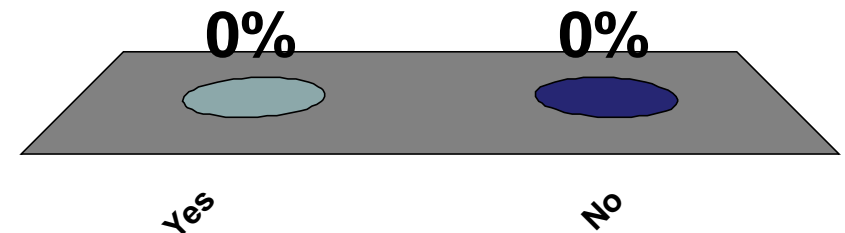
610 – Flood Warning and Response

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Assignment #2. Assume Dundee meets all the activity credit criteria. Does Dundee have a flood threat recognition system that warrants credit for FTR?

A. Yes

B. No



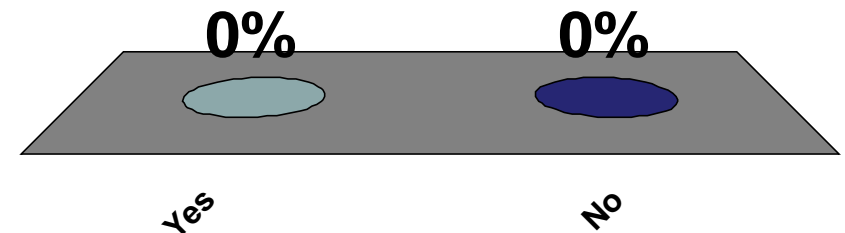
610 – Flood Warning and Response

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Assignment #3. Assume Dundee meets all the activity credit criteria. Does Dundee have a flood response operations program that warrants credit for FRO?

A. Yes

B. No



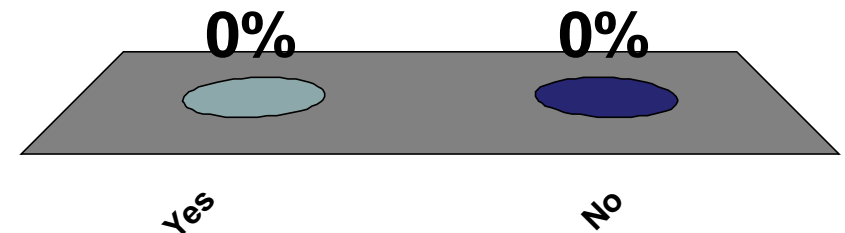
610 – Flood Warning and Response

Manual Page 610-15

Assignment #4. Does Dundee have any critical facilities that would be affected by flooding?

A. Yes

B. No



620 – Levees



FEMA



620 – Levees



FEMA

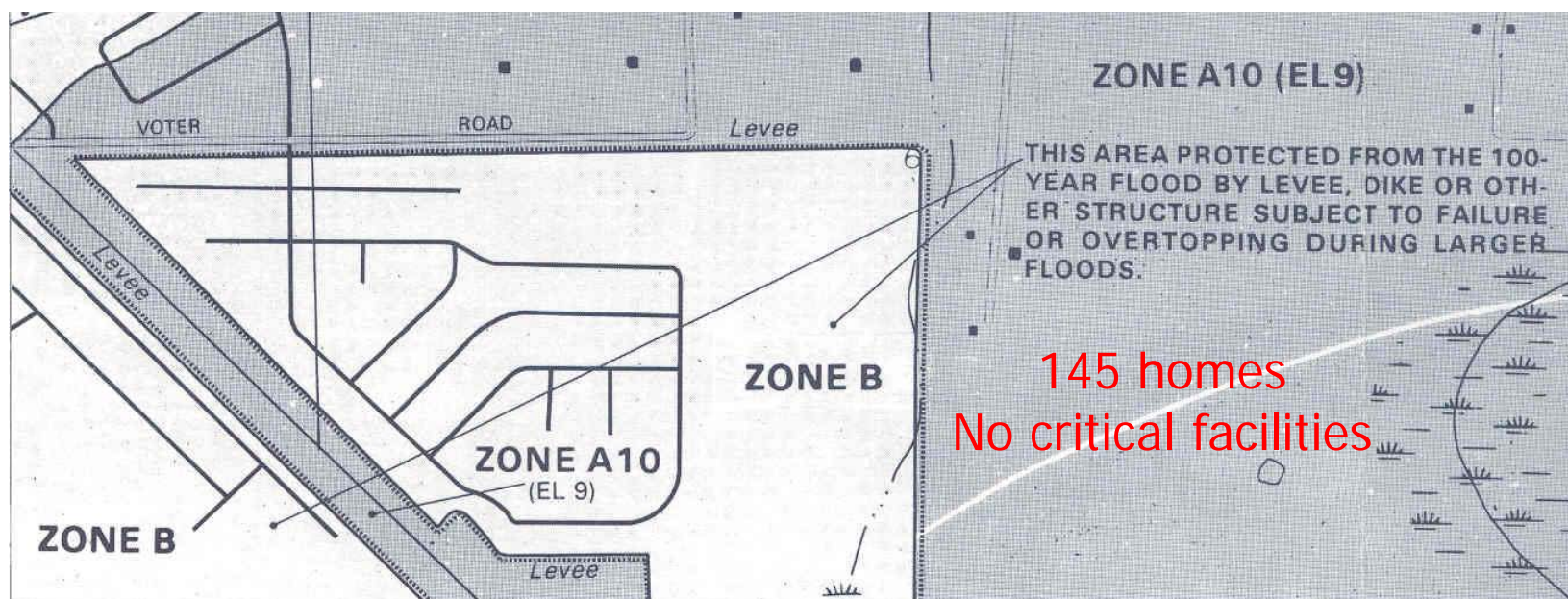


620 – Levees

Manual Page 620-3

621.b Activity Credit Criteria

- (1) Designed and constructed as a levee
- (2) Operated and maintained by a public agency
- (3) Map and data on the area affected



620 – Levees

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621.b Activity Credit Criteria

- (1) Designed and constructed as a levee
- (2) Operated and maintained by a public agency
- (3) Map and data on the area affected
- (4) Levee maintenance plan with annual inspections
- (5) Outreach project



620 – Levees

Manual Page 620-4

(5) Outreach project

(a) Notice to everyone in protected area

(b) Another approach developed in the PPI

Dear Property Owner:

Gets Activity 330 (Outreach Projects) credit

Your property is located behind a State-Federal project levee. According to our records, your property located at _____ may be exposed to potential flood risk from the _____. Your property may also be at risk for flooding from other sources not identified in this notice, such as creeks and local storm drains.

Visit www.water.ca.gov/myfloodrisk and enter your property address to find the areas subject to flooding if State-Federal project levees should fail, and to get information about State-Federal levees in your area.



620 – Levees

Manual Pages 620-3 – 5

621.b Activity Credit Criteria

- (1) Designed and constructed as a levee
- (2) Operated and maintained by a public agency
- (3) Map and data on the area affected
- (4) Levee maintenance plan with annual inspections
- (5) Outreach project
- (6) Must obtain some credit in LFR, LFW, LFO, LCF
- (7) Adopted levee failure flood warning and response plan
- (8) Annual exercise

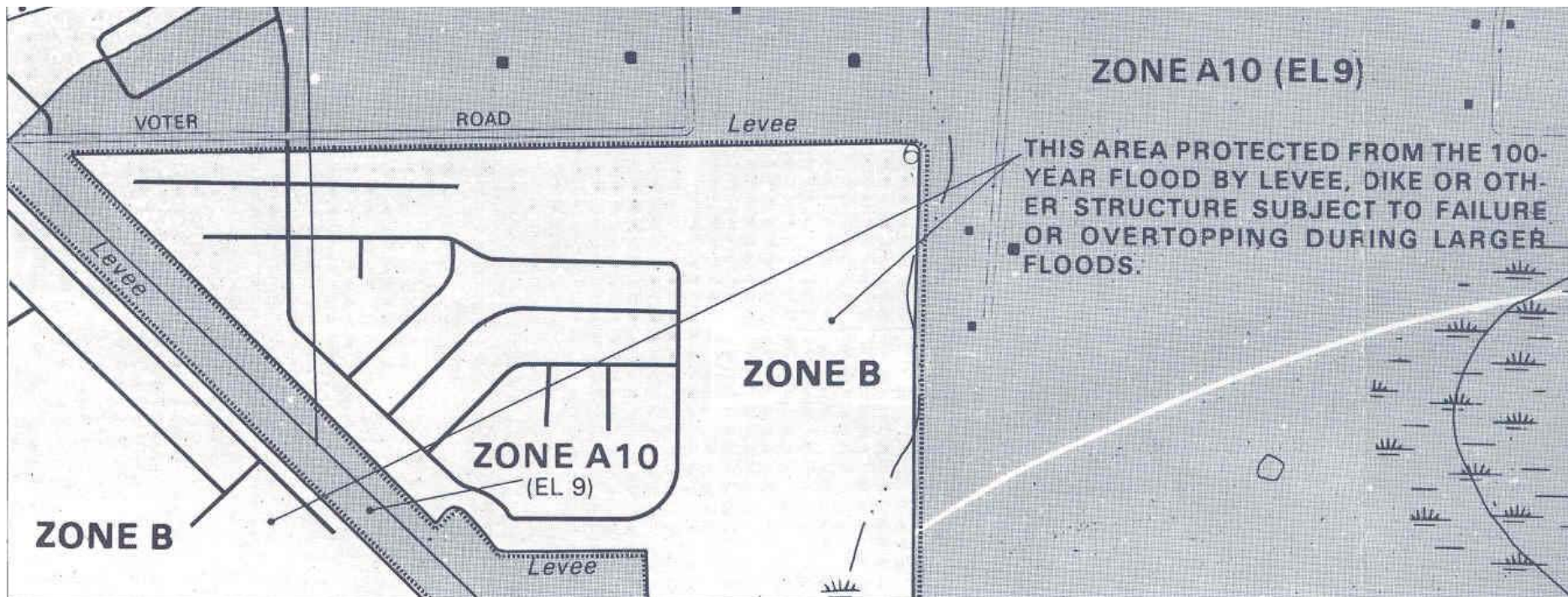


620 – Levees

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621.c Map of the Affected Area

- ✓ Accredited levees: B Zone/shaded X Zone

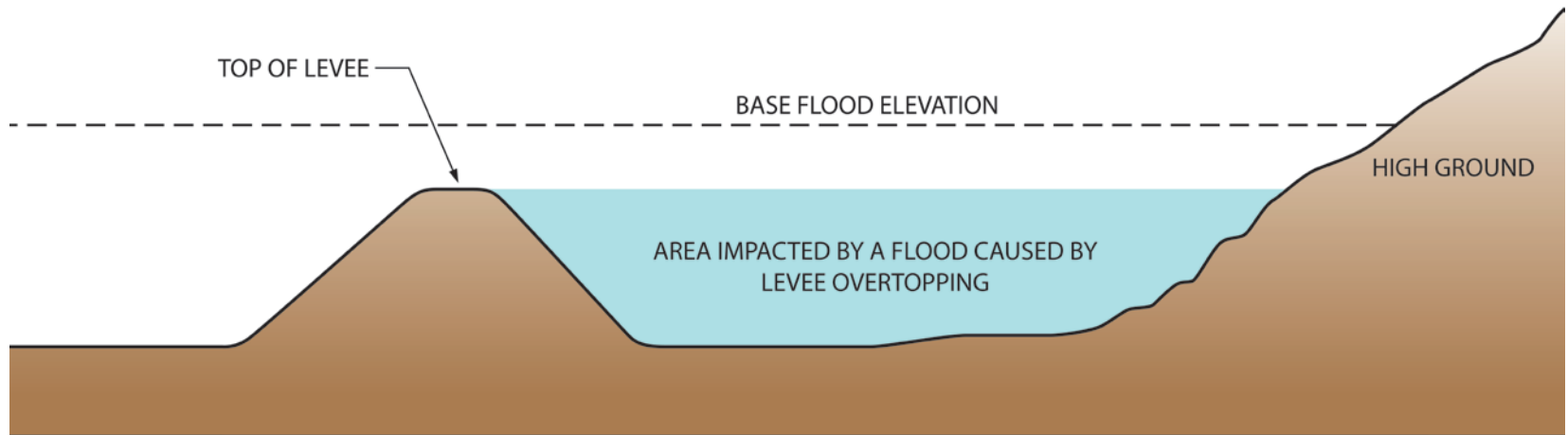


620 – Levees

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621.c Map of the Affected Area

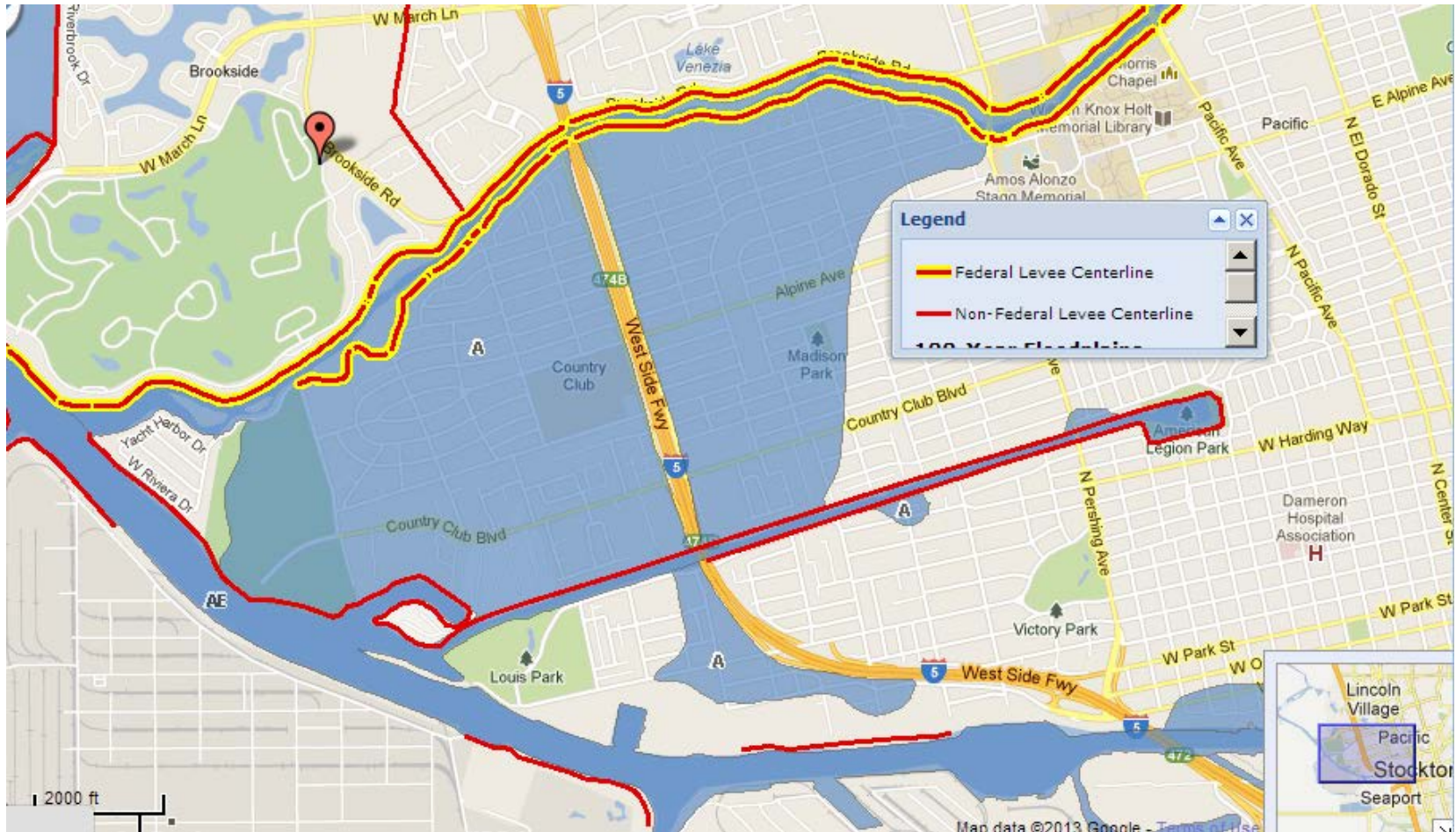
- ✓ Accredited levees: B Zone/shaded X Zone
- ✓ Non-accredited levees: area lower than top of levee



620 – Levees

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621.c Map of the Affected Area



620 – Levees

Manual Pages 620-6 – 8

622.a Levee maintenance (LM)

(1) LM1: Annual inspection and maintenance

(2) LM2: Levee agency's emergency action plan

Need both for LM credit and need LM credit for 620 credit



620 – Levees

Manual Pages 620-10 – 18

Levee failure warning and response plan

622.b Levee failure threat recognition system (LFR)

622.c Levee failure warning (LFW)

622.d Levee failure response operations (LFO)

622.e Levee failure critical facilities planning (LCF)

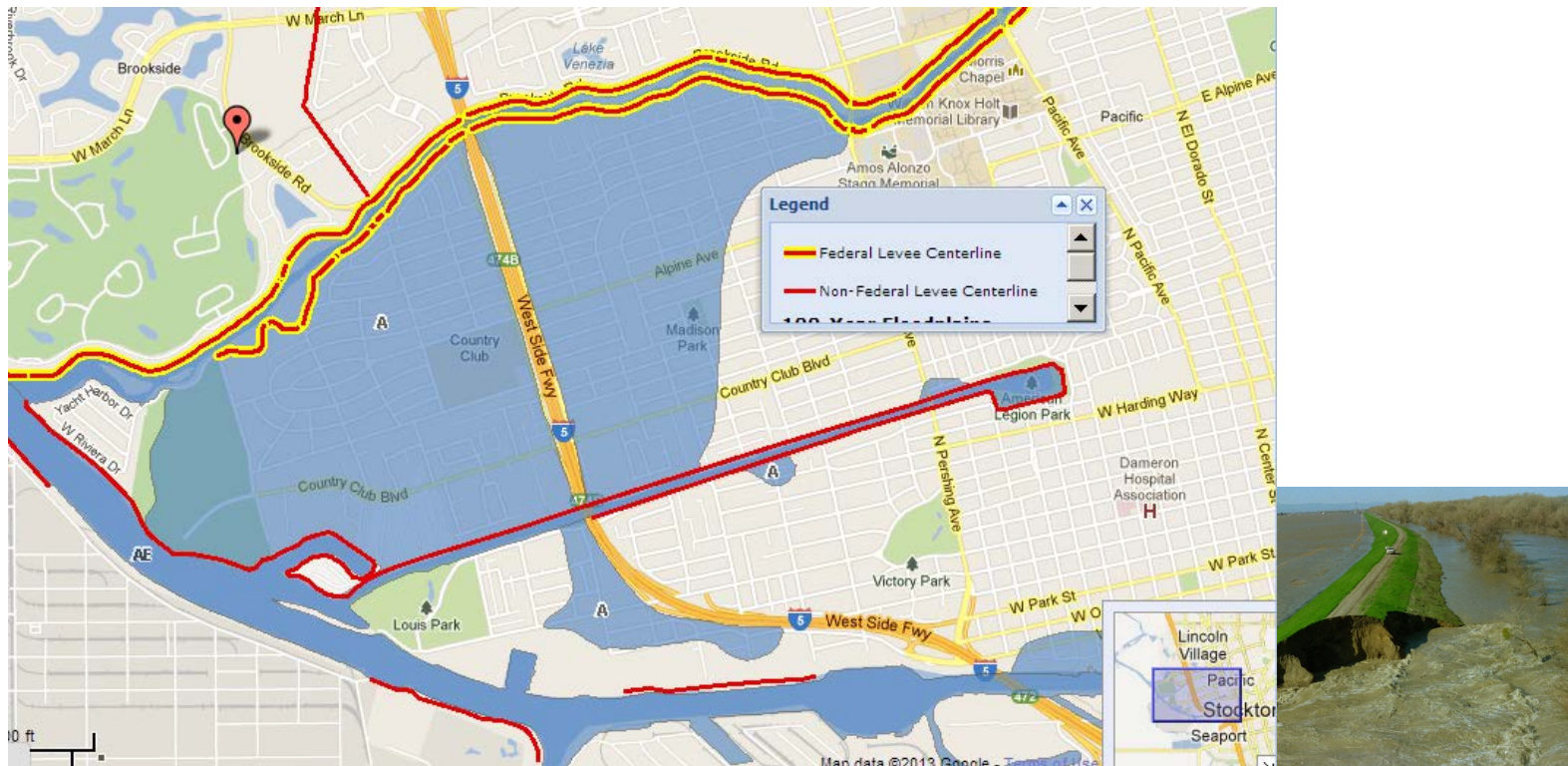


620 – Levees

Manual Pages 620-18 – 19

623 Impact adjustment

$$r = \frac{\text{number of buildings affected by the element}}{\text{number of buildings affected by levee failure (bLF)}}$$



620 – Levees

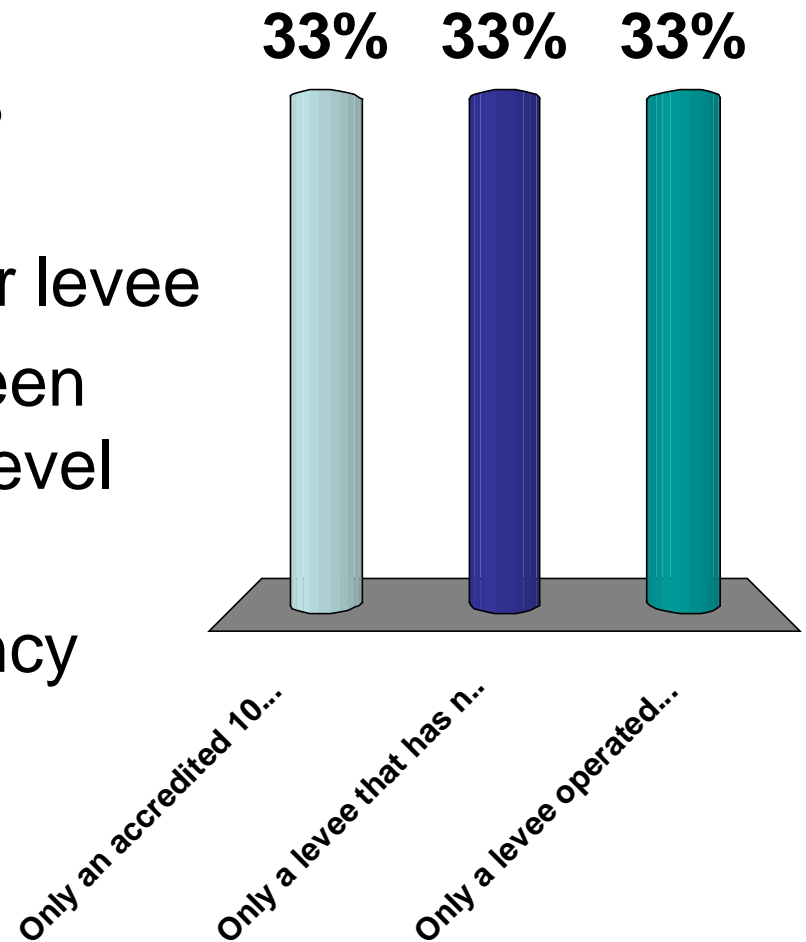
Questions?



620 – Levees

Assignment #1. What type of levee is needed for credit under Activity 620 (Levees)?

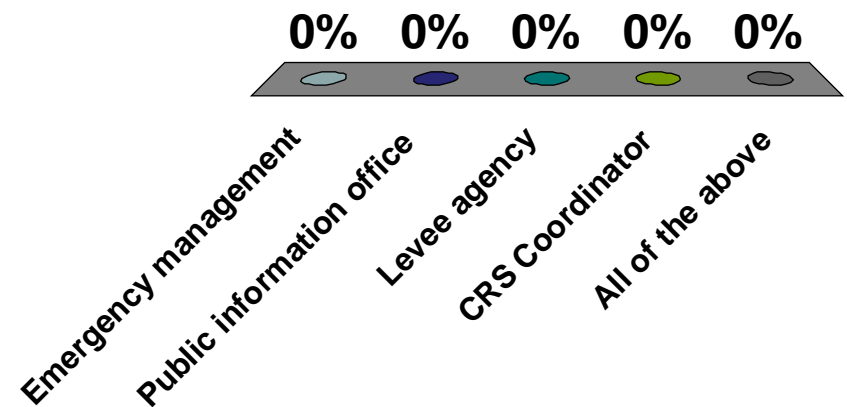
- A. Only an accredited 100-year levee
- B. Only a levee that has not been accredited to the 100-year level
- C. Only a levee operated and maintained by a public agency



620 – Levees

Assignment #2. Which office should be involved in preparing for credit for Activity 620 (Levees)?

- A. Emergency management
- B. Public information office
- C. Levee agency
- D. CRS Coordinator
- E. All of the above



630 – Dams



FEMA



630 – Dams



FEMA

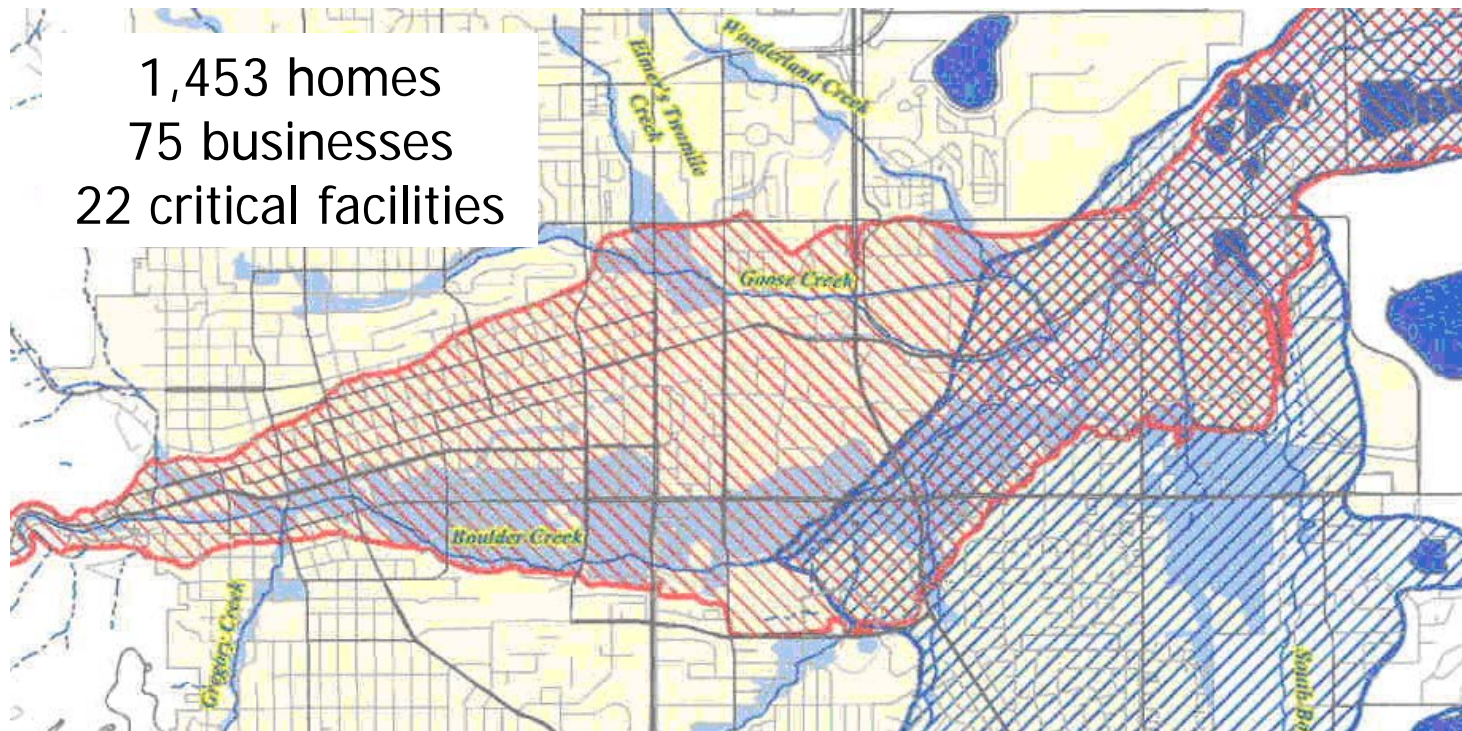


630 – Dams

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631.b Activity Credit Criteria

- (1) ≥ 1 building subject to dam failure flooding
- (2) Description of the dam failure threat



630 – Dams

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631.b Activity Credit Criteria

- (1) ≥ 1 building subject to dam failure flooding
- (2) Description of the dam failure threat
- (3) Must obtain some credit in DFR, DFW, DFO, DCF
- (4) Adopted dam failure flood warning and response plan
- (5) Outreach project
- (6) Annual exercise



630 – Dams

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632.a State dam safety program (SDS)

Assesses state program for:

- Assessment of condition of dams in the state
- Risk communication and public awareness
- Promotion of emergency action plans by operators

Documentation done by state office

Community must be in compliance with state program

Credit points

SDS = up to 45 points



630 – Dams

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Dam failure warning and response plan

632.b Dam failure threat recognition system (DFR)

632.c Dam failure warning (DFW)

632.d Dam failure response operations (DFO)

632.e Dam failure critical facilities planning (DCF)

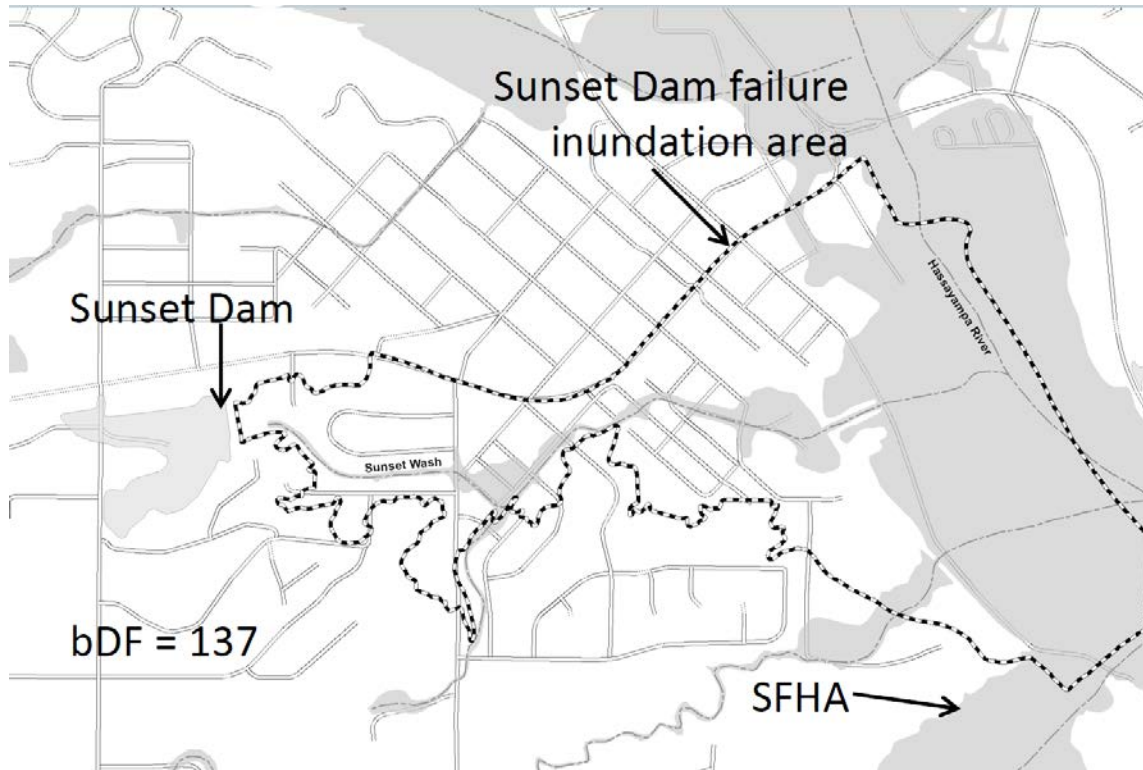


630 – Dams

Manual Pages 630-13 – 14

633 Impact adjustment

$r = \frac{\text{number of buildings affected by the element}}{\text{number of buildings affected by dam failure (bDF)}}$



630 – Dams

Questions?



610 – Flood Warning and Response

600 Series (Warning and Response)

Assignment

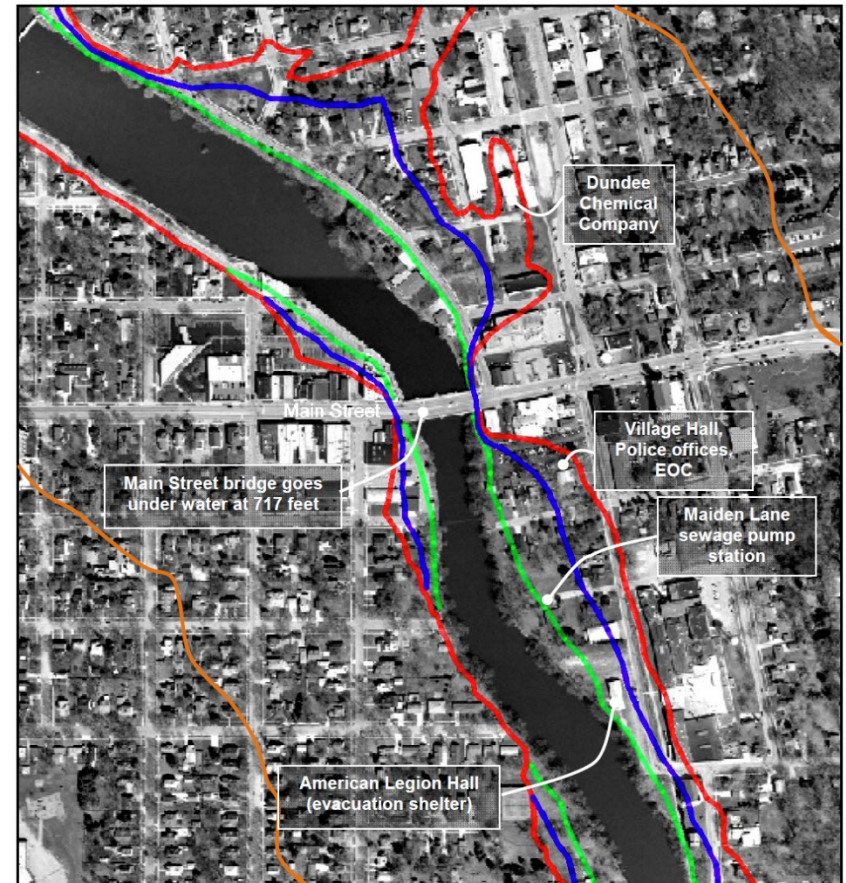
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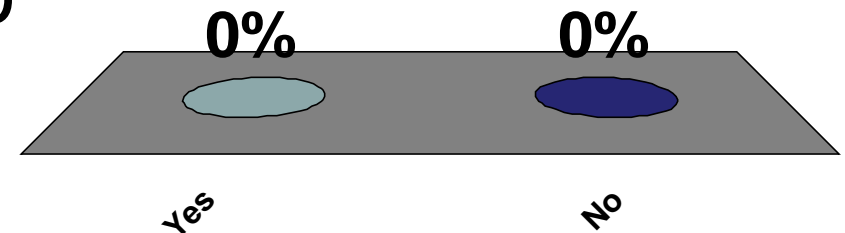
630 – Dams

Manual Page 630-3

Assignment #1. Does Dundee's flood response program meet credit criterion (1) for Activity 630 (Dams)?

A. Yes

B. No



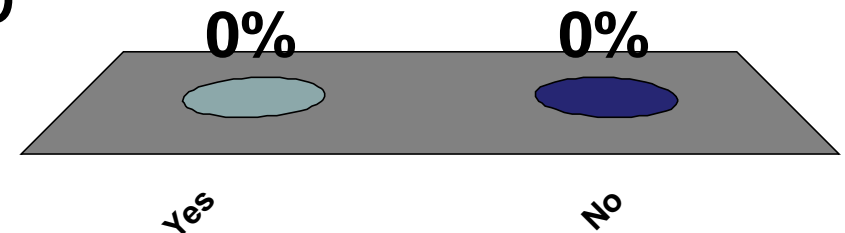
630 – Dams

Manual Page 630-3

Assignment #2. Does Dundee's flood response program meet credit criterion (2) for Activity 630 (Dams)?

A. Yes

B. No

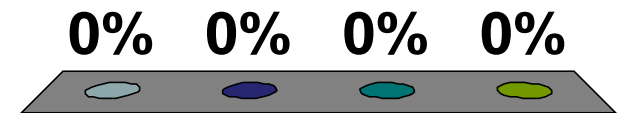


630 – Dams

Manual Page 630-5

Assignment #3. Which of the following does Dundee need to do in order to receive credit for its State dam safety program (SDS)?

- A. Show that it is affected by a failure of a high hazard dam
- B. Be able to issue warnings of a dam failure flood
- C. Do an outreach project to affected properties each year
- D. All of the above



Show that it is affect..
Be able to issue warn...
Do an outreach projec...
All of the above