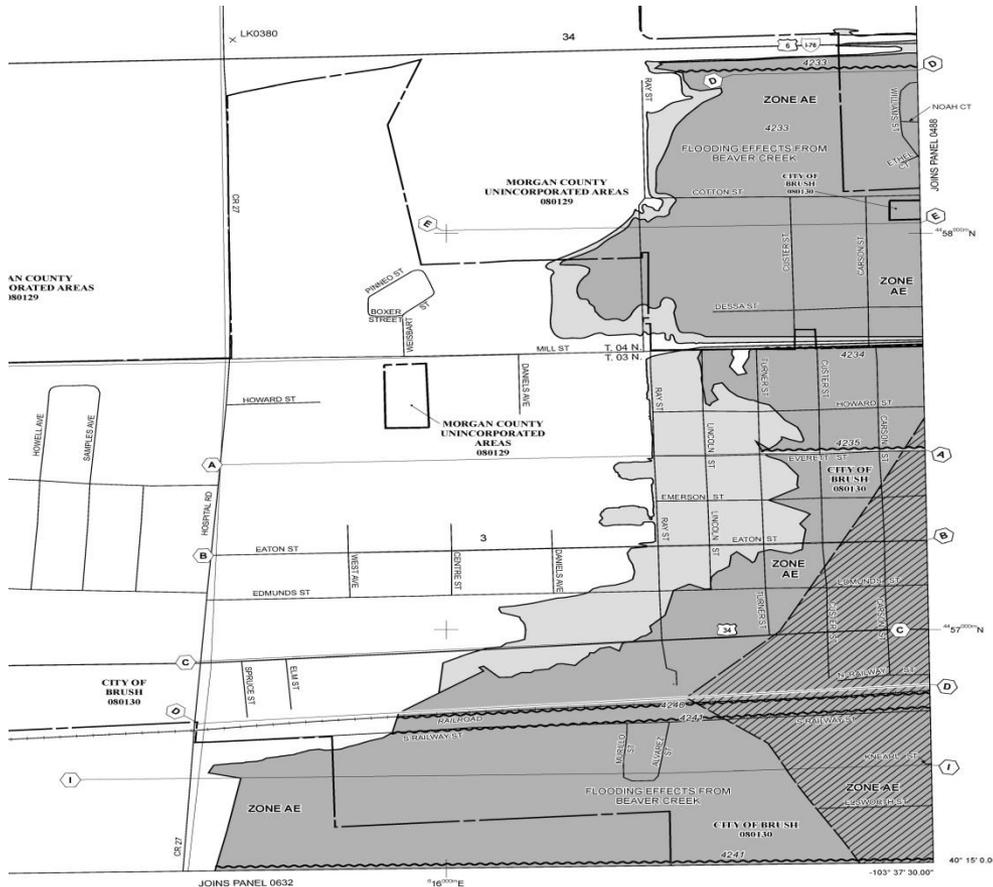


Morgan County Map Update

City of Brush

City Council Meeting

June 27, 2016



THIS PANEL IS LOCATED WITHIN TOWNSHIP 03 NORTH, RANGE 56 WEST, AND TOWNSHIP 04 NORTH, RANGE 56 WEST.

(EL 987)

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A Cross section line

(23) Transsect line

97° 07' 30.00"
32° 22' 30.00"
4767000N

6000000 FT

DX5510

M1.5

Base Flood Elevation value where uniform within zone; elevation in feet*

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid ticks, zone 13

5000-foot grid ticks: Colorado State Plane coordinate system, north zone (FIPS ZONE 0501), Lambert Conformal Conic Projection

Bench mark (see explanation in Notes to Users section of this FIRM panel)

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 500 1000 FEET
100 0 100 300 METERS

NFP

PANEL 0469D

FIRM

FLOOD INSURANCE RATE MAP

MORGAN COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 469 OF 0875

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

COUNTIES	NUMBER	PANEL	SUFFIX
BRUSH CITY OF MORGAN COUNTY	080130	0469	D
	080129	0469	D

PRELIMINARY

MARCH 16, 2016

Notice to User: The Map Number shown below should be used when placing rate orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER 08087C0469D

EFFECTIVE DATE

FEDERAL EMERGENCY MANAGEMENT AGENCY

Today's Agenda

- Introductions
- Purpose of Map Update
- Program Background
- City of Brush Map update
- Next Steps
- Flood Insurance and Compliance
- Q & A

Introductions

- **Colorado Water Conservation Board (CWCB)**
 - Thuy Patton – Floodplain Mapping Coordinator
 - Stephanie DiBetitto – Community Assistance Program Coordinator

- **FEMA Region VIII**
 - David Sutley- FEMA Mapping Program Specialist
 - Matt Buddie - National Flood Insurance Program Specialist

Why Update Maps?

Morgan County, including the City of Brush participates in the National Flood Insurance Program

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Brush, City of	November 23, 1973	April 25, 1975	December 1, 1977	October 13, 1981
Fort Morgan, City of	October 29, 1976	February 6, 1979	February 5, 1986	N/A
Hillrose, Town of	N/A	N/A	N/A	N/A
Log Lane Village, Town of	N/A	N/A	N/A	N/A
Morgan County (Unincorporated Areas)	February 21, 1978	May 12, 1981	September 29, 1989	December 5, 1989
Wiggins, Town of	January 28, 1977	N/A	February 15, 1979	December 5, 1989

- Identify current and accurate areas of flood risk
- Flood Insurance Rating
- Used for planning and emergency management

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

**MORGAN COUNTY, CO
AND INCORPORATED AREAS**

COMMUNITY MAP HISTORY

Mapping Program Background

- Map Modernization/Risk MAP Program History
 - CWCB is a Cooperating Technical Partner (CTP)
 - 5 Year Program to “update” paper Flood Insurance Rate Maps (FIRMs) to Digital Flood Insurance Rate Maps (DFIRM)
 - Countywide Format
 - 2009- Program Transition (Awareness & Mitigation)
- Morgan County DFIRM Project – Started in 2009
 - CWCB managed project , funded primarily by FEMA
 - City of Brush LOMR incorporated into the overall map update
 - Preliminary Maps Distributed on March 16, 2016



City of Brush

Beaver Creek LOMR

- Completed in 2012 by AECOM for CDOT/CWCB
- Two significant updates with study:
 - Flow rates reduced by 30%- more detailed analysis
 - 5 Structures Added to the hydraulic model- not included in the original model

Table 4.2: Comparison of Effective & Revised Flood Discharges

Flood Frequency (% Annual Chance)	Return Period (Years)	Effective Model Discharge ¹ (cfs)	Revised Model Discharge ² (cfs)
10%	10	12,400	14,700
2%	50	37,000	30,300
1%	100	55,200	38,400
0.2%	500	119,600	69,700

¹FEMA effective flow for Beaver Creek as calculated per Reference 9:

Plains Region Equation: $Q_{100} = 1,770(A)^{0.463}S_b^{0.086}$

²HEC-HMS Version 3.2 rainfall runoff analysis revised flow for Beaver Creek per Reference 5

Table 5.1: Existing Features in the Beaver Creek Floodplain

Feature Name	Feature Type	HEC-RAS Feature ID
County Rd "R" Bridge	3-span highway bridge	Bridge 18607
BNSF Rail Embankment #2	Railroad embankment	Lateral Weir 14500
BNSF Rail Bridge #2	11-span steel & concrete rail bridge	Bridge 14055
BNSF Rail Embankment #1	Railroad embankment	Lateral Weir 14007
SH 34	Highway embankment	Lateral Weir 13473
BNSF Rail Embankment #3	Railroad embankment	East Side of Cross Sections 11550 & 11742
SH 34 Bridge	5-span continuous concrete slab highway bridge	Bridge 11848
BNSF Rail Embankment #1	Railroad embankment	Lateral Weir 11245
BNSF Rail Bridge #1	9-span continuous concrete slab rail bridge	Bridge 10838
Junction 1	Flow confluence	Junction #1
County Rd 29 Bridge	3-span steel I-girder bridge	Bridge 10032
I-76 Bridge	Two 8-span pre-stressed concrete girder highway bridges	RS 4913 & 4518 (with blocked obstructions for piers)

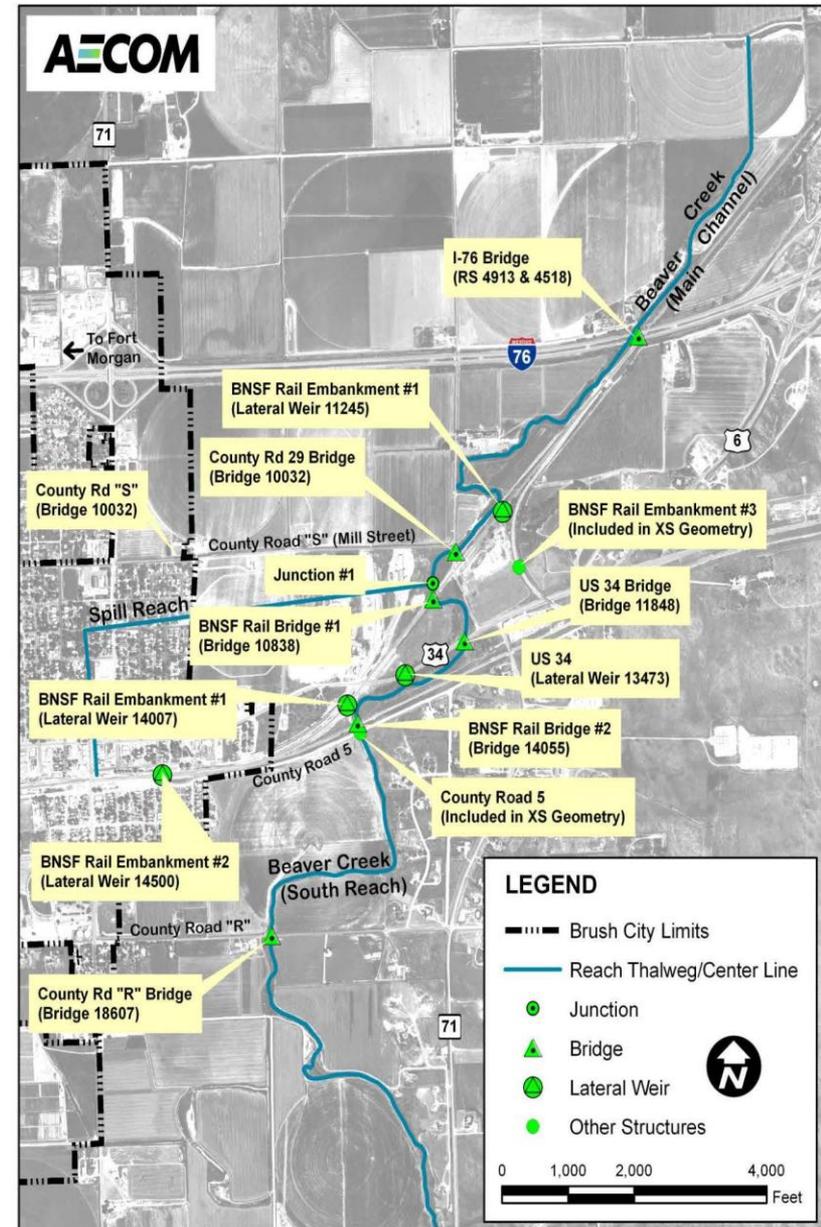
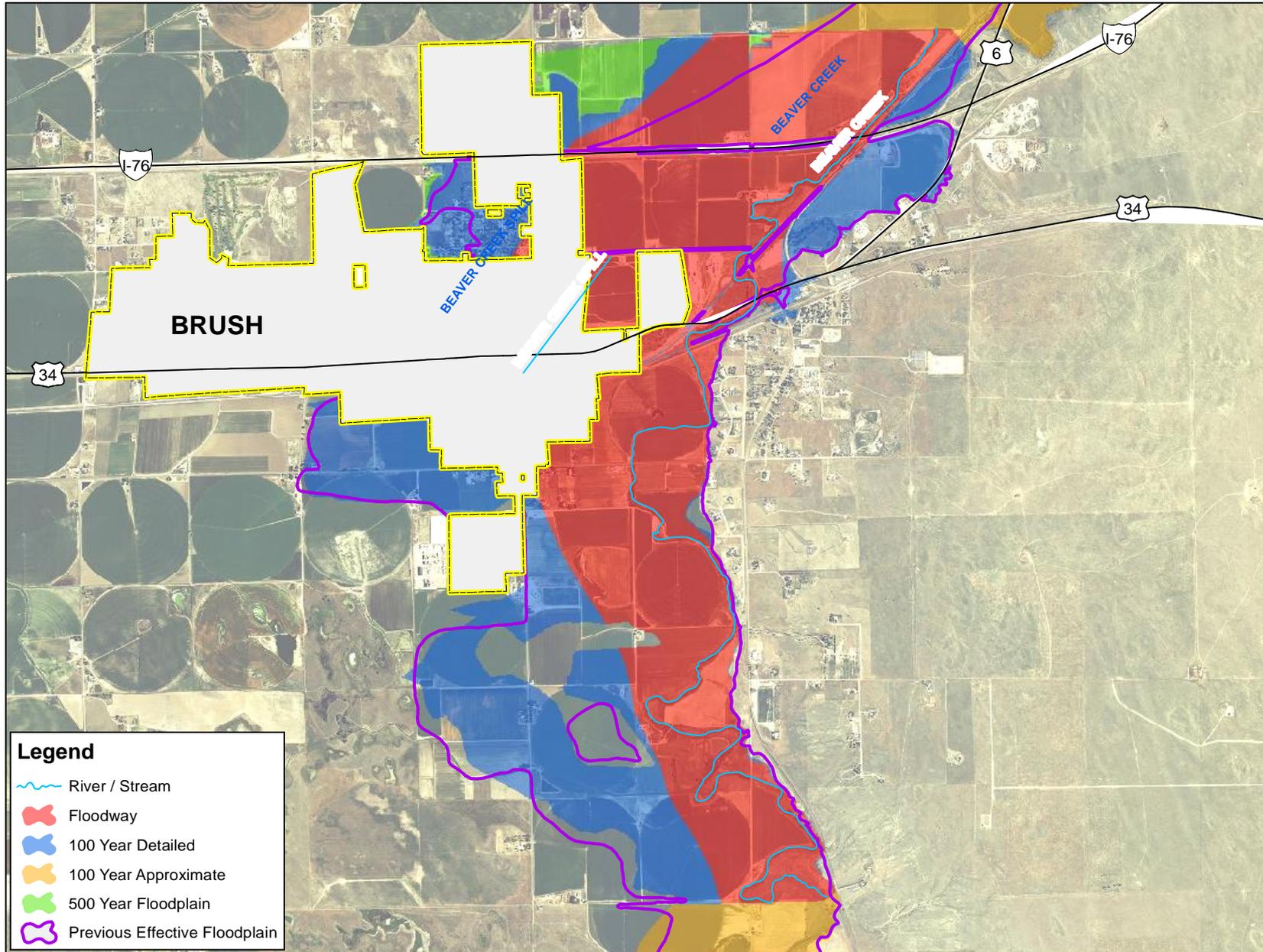
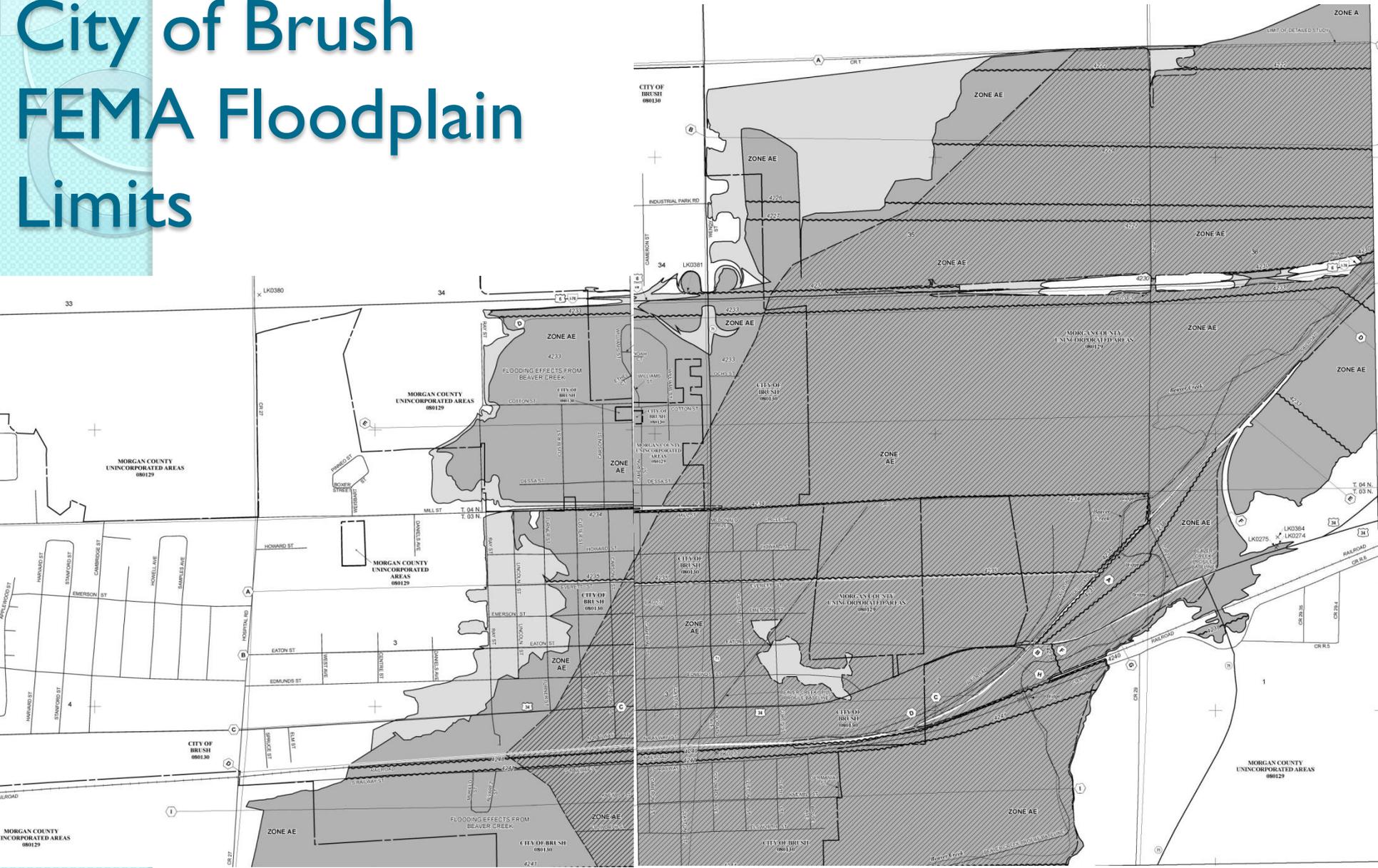


Figure 1: Beaver Creek Feature Locations

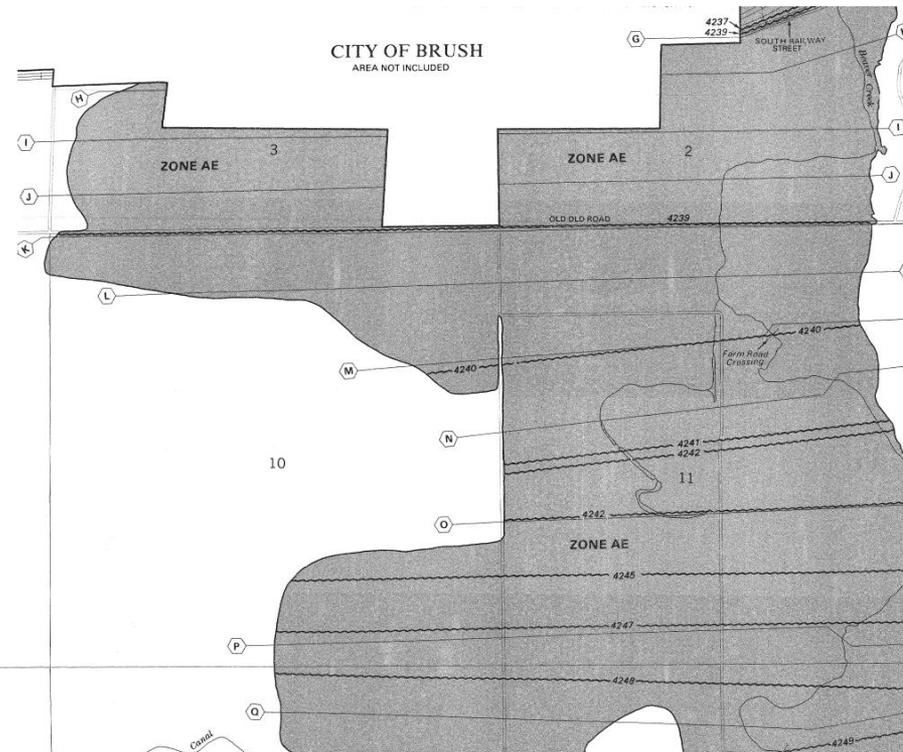
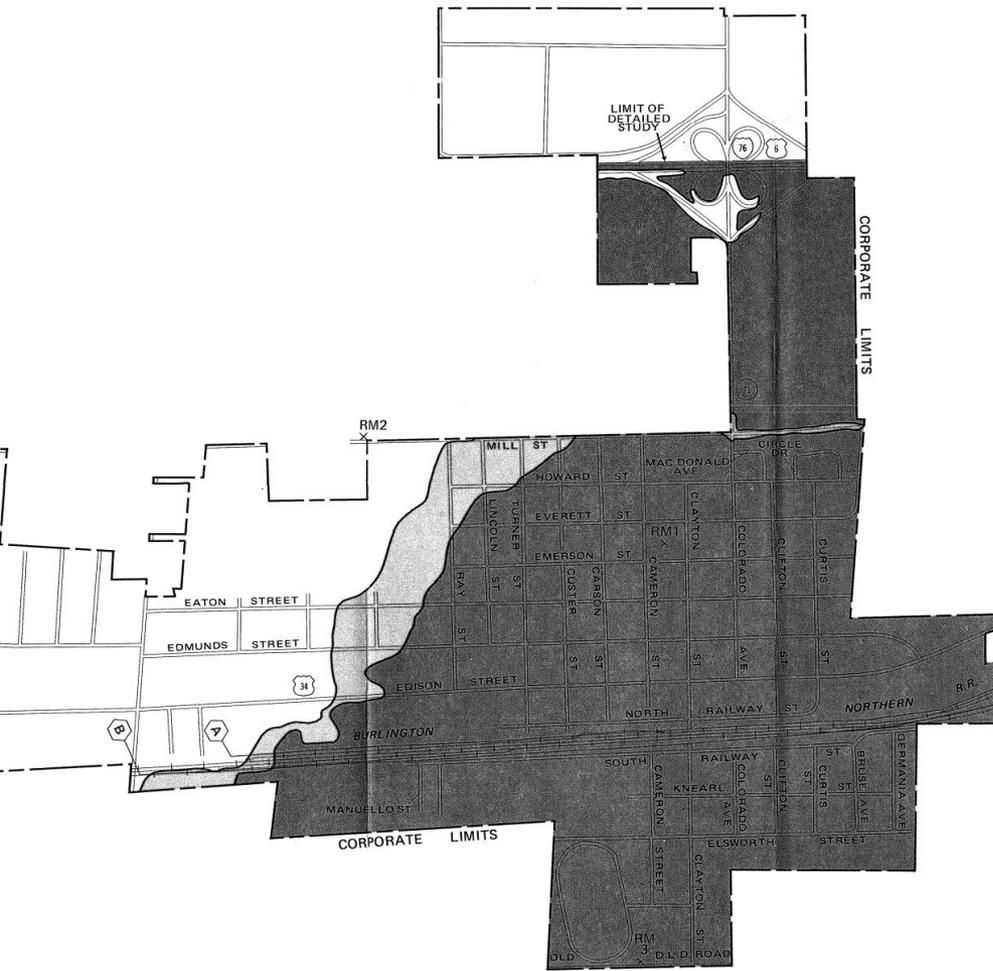
Beaver Creek Floodplain Limits



City of Brush FEMA Floodplain Limits



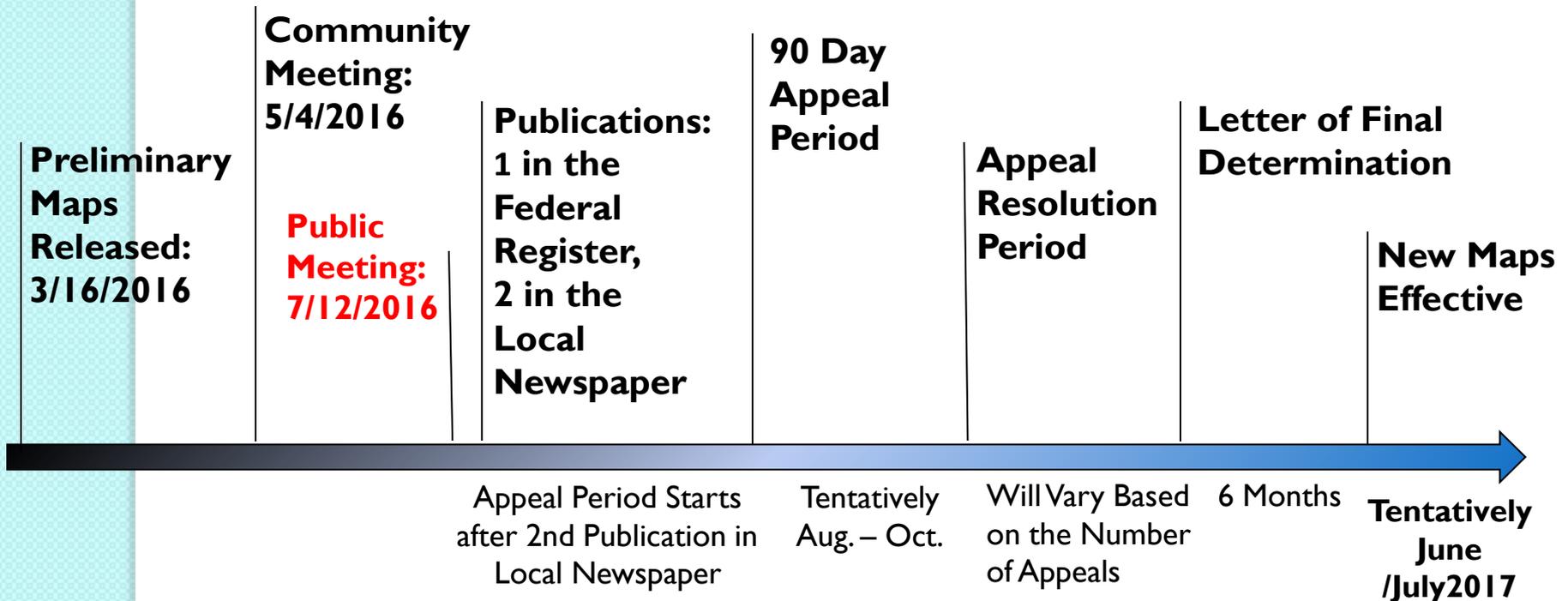
City of Brush Circa 1981



Morgan County Circa 1989

Next Steps

- Review the Maps
 - Submit Any Remaining Comments
 - Appeals
- Update Floodplain Regulations



What Does This Mean for Property Owners?

- Effective maps will be used to administer local floodplain regulations
- Effective maps will be used to identify flood risk premiums for properties with flood insurance
 - Flood insurance available to all properties in county
 - Mandatory flood insurance
 - High risk areas
 - Grandfathering
 - Low to moderate risk areas = 25% of claims

Effects of Map Changes on Insurance

- Properties move into a high-risk zone (A Zone) from a low- or moderate risk zone (B,C,X)
 - (e.g. Grandfathering, PRP or Newly Mapped)
- Properties move into a low- or moderate risk zone (B, C, X) from a high-risk zone (A Zone)
 - (e.g. Conversion to PRP)
- There is a change in Base Flood Elevation (BFE) (Grandfather Rule)

Questions & Contact Information

Colorado Water Conservation Board (CWCB) Federal Emergency Management Agency (FEMA)

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