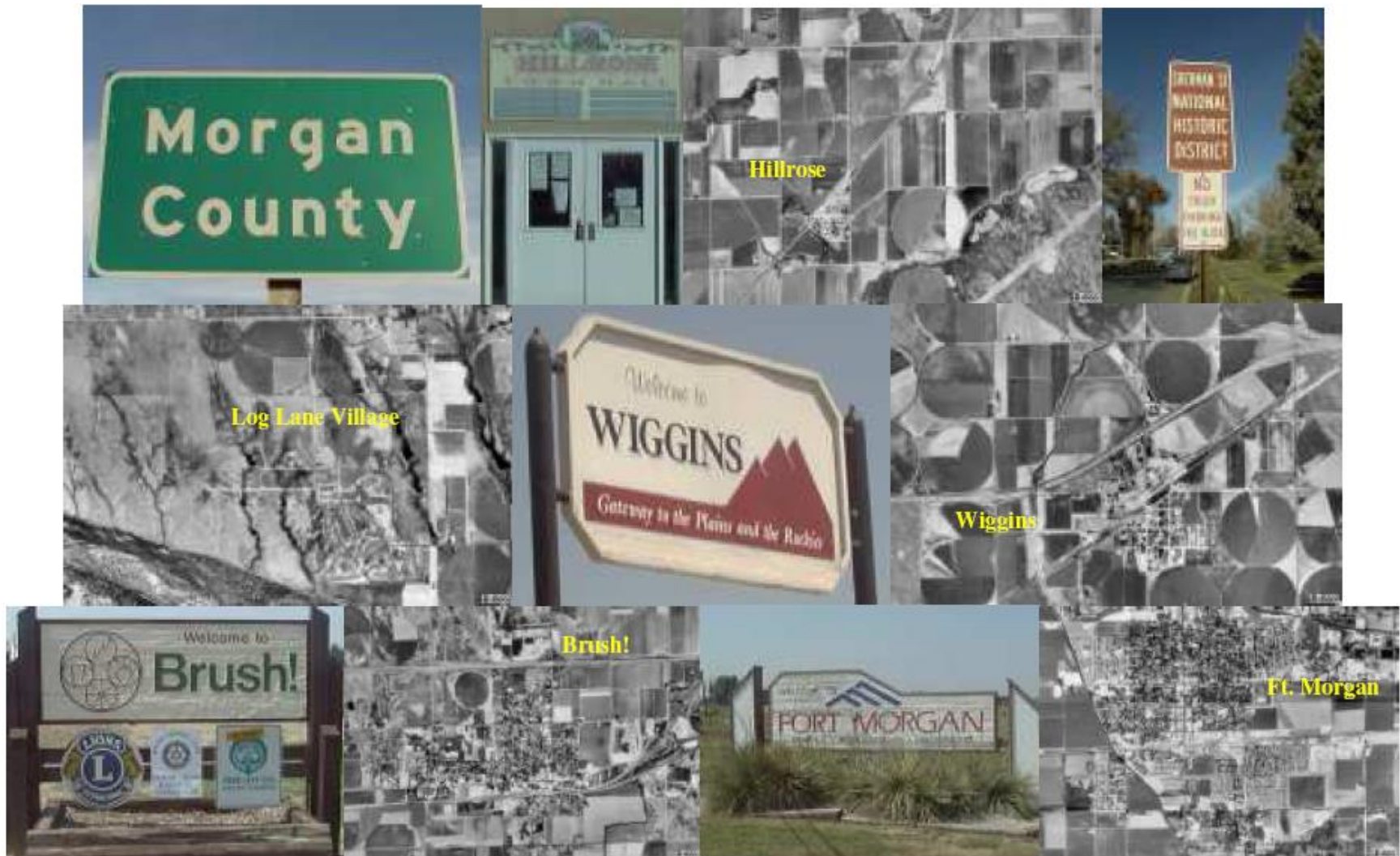




**MORGAN COUNTY
Pre-Disaster Mitigation
2013 Plan**

MORGAN COUNTY PLANNING ELEMENT



Morgan County Planning Subcommittee and General Description

The entities listed below participated in the DMA planning process in 2014 through the Morgan County Planning Subcommittee. More details about the planning process and how Morgan County, its municipal partners and other stakeholders participated can be referenced in Chapter 3 of the regional base plan. Additional details on local agency participation and representation can be found in Appendix B of the regional base plan.

Morgan County	Continuing
Brush	Continuing
Fort Morgan	Continuing
Hillrose	Continuing
Wiggins	Continuing
Quality Water District	Continuing
Brush School District	New in 2014
Morgan County Rural Electric Association	New in 2014
Lower South Platte Water Conservancy District	New in 2014

County Profile

Morgan County is located in the northeastern region of the State in the high plains and is primarily agricultural. The land area of Morgan County is 1,285 square miles. According to the 2010 U.S. Census, the population for Morgan County was 28,159. The estimated 2012 population is 28,206, indicating a continued pattern of slow to flat population growth. As of the 2010 Census, the median age in Morgan County is 36.0, the average household size is 2.68, and the average family size is 3.23. 78.6% of the population over the age of 25 holds at least a high school degree and 14.6% hold a bachelors level degree or higher. 10.7% of the population (over age 5) holds disability status, 26.4% speak a language other than English in the home, and 14.6% of individuals live below poverty level. Morgan County is a rural County located on the eastern plains of central Colorado. The County is located a little over 100 miles northeast of the state capital of Denver. The largest city in the County is Fort Morgan. The South Platte River and Interstate Highway 76 transect the County. The County is typical of the mid-western plains, with a rural orientation and solid agricultural basis. The 2012 Census of Agriculture reports 754 farms in the County with 647,252 total acres of farmland. The average farm size is 858 acres.

Hazard Identification and Summary

Morgan County's planning team identified the hazards that affect the County and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Morgan County. This information is presented in **Error! Reference source not found.** A detailed description of each hazard can be found in Section 4.2 Hazard Profiles in the regional base plan.

Table 1. Morgan County Hazard Summary

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Biological Hazards				
Pestilence	Extensive	Occasional	Limited	Medium
Plague*	Limited	Likely	Limited	Medium
Blizzards & Severe Winter Storms	Extensive	Likely	Critical	High
Dam Failures & Levee Failures	Limited	Likely	Critical	High
Drought	Extensive	Likely	Critical	High
Earthquake	Limited	Occasional	Limited	Low
Flooding	Significant	Likely	Significant	High
Fog	Significant	Likely	Negligible	Low
Hailstorms	Extensive	Highly Likely	Limited	Medium
Land Subsidence	Limited	Likely	Negligible	Low

Landslides	Limited	Occasional	Negligible	Low
Lightning	Extensive	Highly Likely	Limited	Medium
Noxious Weeds	Extensive	Highly Likely	Negligible	Low
Straight-Line Winds	Extensive	Highly Likely	Limited	High
Temperature Extremes	Extensive	Highly Likely	Limited	Low
Tornados	Extensive	Likely	Critical	High
Wildland & Grassland Fires	Extensive	Highly Likely	Limited	High

* Some zoonotic hazards have higher or lower ratings than those reflected here, based on individual datasets.

Geographic Extent

Limited: Less than 10% of planning area

Significant: 10-50% of planning area

Extensive: 50-100% of planning area

Probability of Future Occurrences

Highly Likely: Near 100% chance of occurrence in next year, or happens every year.

Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.

Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.

Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity

Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths

Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability

Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability

Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance

Low: minimal potential impact

Medium: moderate potential impact

High: widespread potential impact

Morgan County History of Recorded Natural Hazard Losses

Winter storms, windstorms, drought, flood, dam/levee failure, hail, wildfires and tornadoes occur most frequently in the County and present the greatest risks to people and property from natural hazards. A summary of the past hazard events is captured in 0 and in the text that follows.

Table 2. Historic Hazard Events

Date	Event	Location	Damages	Other Info	Data Source
1905	Flood	S. Platte			
1909	Smallpox	Empire Lake			
c. 1920	Rabbits			Rabbit Drives	Ft. Morgan Museum
1930's	Drought Dust Bowl				Planning Team Drought Plan

Date	Event	Location	Damages	Other Info	Data Source
May, 1935	Flood	South Platte River	Power/Water Traffic Delayed	Out 1.5 days Several Days	Ft. Morgan Museum
1938	Grasshoppers				Newspaper
February, 1938	Flood	Brush			FIS
July 8, 1955	Tornado		\$3K	F2	NCDC
June 1, 1956	Tornado			F2	NCDC
June 19, 1956	Tornado			F2	NCDC
August 21, 1957	Wind			78 MPH	NCDC
June, 1965	Flood	South Platte River			Planning team, newspapers
June 7, 1966	Hail			2.75"	NCDC
July 7, 1977	Hail			2.75"	NCDC
August 1, 1979	Wind			70 MPH	NCDC
1980	Grasshoppers			(State Dec)	CO-OEM
1981	Grasshoppers			(State Dec)	CO-OEM
June 13, 1981	Tornado		\$25K	F1	NCDC
June 14, 1982	Hail			2.75"	NCDC
May 24, 1984	Tornado		\$250K	F2	NCDC
June 13, 1984	Tornado		\$25K	F1	NCDC
Sept. 21, 1984	Tornado		\$3K	F1	NCDC
June 24, 1985	Wind			70 MPH	NCDC
July 15, 1985	Hail			2.5"	NCDC
July 18, 1985	Tornado		\$25K	F1	NCDC
April 3, 1986	Ice storm				Planning Team
September 18, 1986	Tornado		\$250K	F2	NCDC
May 19, 1989	Wind			70MPH	NCDC
June 30, 1989	Hail			4.5 "	NCDC
June 1, 1990	Wind			77-95 MPH	NCDC
June 14, 1990	Tornado		\$250K	F2	NCDC

Date	Event	Location	Damages	Other Info	Data Source
July 14, 1994	Wind/Hail		\$500K		NCDC
August 1, 1994	Drought				USDA/FSA
June, 1, 1995	Flood	County	\$303,348 \$12 Million	State Exec. Order Ag. Damage	DOLA/CO-OEM CWCB
October 29, 1996	Wind			\$5.2 Million	NCDC
1996	Tornado	Twin funnels	\$300,000	Local Declaration	
June 2, 1997 (Weldona) July 30, 1997 (Weldona) August 3, 1997 (Hillrose area)	Flood (Fed. # 1186)	Schaefer Draw, breaching of the Riverside Ditch, and Weldona Valley Ditch	\$286,341 \$327,080 \$1,106,348.00 \$800,000 to roads/bridges	15,000 acres affected 36 homes affected 6 businesses affected TOTAL DAMAGES Weldona Levee Project cost \$629,229	DOLA/CO-OEM CWCB FEMA NCDC
June 22, 1997	Tornado	Brush	\$3,500	F1	NCDC
October, 1997	Blizzard				NCDC
May, 1998 June, 1998	Severe Weather Hail	Wiggins, Brush, Log Lane Village, Ft. Morgan		County Declaration, \$31.8M in insurance (PI application)	County Project Impact Application
1999	Hail	County	\$278,531 \$8,357	Building Damage Vehicle Damage	County Finance Dept.
March 07, 2000	Wind			100 MPH	NCDC
April 29, 2000	Wind	Orchard & Weldona		95MPH	NCDC
May 17, 2000	Wind		\$25K	90 MPH	NCDC
July 12, 2000	Flood	E. Central	\$50K \$200K	Property damage Crop damage	NCDC
2000	Drought	Contiguous County			USDA/FSA
April, 2001	Blizzard (FEMA #1374)			HEA lost 2 poles=\$2,947 MCREA >800 poles= \$1.5M/power out 8 days \$1.1 FEMA paid	REA DOLA/CO-OEM FEMA
May 20, 2001	Wind		\$3.4M in property damage	84MPH	NCDC

Date	Event	Location	Damages	Other Info	Data Source
2002	Drought (USDA)				CO-OEM USDA
March 31, 2003	Snow Event	Central Colorado		Included in Disaster Declaration but did not participate	CO-OEM FEMA Planning Team
2003	West Nile Virus			53 reported human cases as of 10/02/2003	CDPHE
12/20/2004	High Wind	Entire County	\$400K	65 mph at Fort Morgan	NCDC
7/4/2005	Hail	Weldona		2"	NCDC
2007	Snowstorm	Regional			
7/12/2007	Hail	Brush		2.75"	NCDC
July 2, 2008	Flooding	Brush	\$25K	Some houses, small businesses, and the hospital in Brush were flooded. Several patients had to be moved to the inner hallways of the building.	NCDC
7/4/2008	Flood	Brush, Fort Morgan	\$20K	County officials reported 9 to 24 inches of water over many roadways in and around Fort Morgan and Brush.	NCDC
8/8/2008	Flood	Orchard	\$10K	Several County roads were washed out between Wiggins and Orchard.	NCDC
6/7/2012	Hail	Brush, Fort Morgan, Wiggins, Hillrose	\$3,500,000.	Damage to cars ,homes, roofs	
9/14/2013	Flood	Entire County	\$8.9 m in damages	Roads/Bridges \$8.9 m Homes, small business Quality Water, MCREA Church, Crops, Special Districts	Co-OEM, FEMA, NRCS

(NCDC Filters Applied: Tornadoes \geq F1; Hail \geq 2"; Wind \geq 75 MPH)

Hazard History in Morgan County From 1950-2012(62 years):

Dams:

- 1 Class I (High Hazard) Dams

-
- 3 Class II (Significant Hazard) Dams
 - No reported Dam Failures.
 - The Class I dam has an emergency action plan.

Levees: Weldona Levee constructed 1999-2001

Drought Incidents: 6 (regional occurrence)

Dust Storms: 0

Earthquakes: Minimal risk according to CGS.¹

Extreme Temperatures:

- Highest Recorded Temperature in County, 107°F
- Lowest Recorded Temperature in County, -32°F
- Extreme Cold Incidents: 3

Floods and Flash Floods: 23

Hailstorms: 23

Landslide Risk: A small portion of the southeast corner of the County is rated as suspected high risk according to the State OEM. No documented hazards exist.

Lightning: Averages 7,300 strikes per year, 1 reported injury and 4 reported deaths from 1980-2005

Severe Wind Storms: 146

Severe Winter Weather: 18

Tornadoes: (F1 or greater) 28 (any size) 63

West Nile: 84 illnesses and 1 fatality reported as of 2008

Wildfires: 1

Total Reported Injuries: 35 + 84 West Nile Virus cases

Total Reported Fatalities: 5 + 1 West Nile Virus case

Morgan County Vulnerability Assessment

The intent of this section is to assess Morgan County's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the regional base plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the

¹ CGS. Earthquake Evaluation Report. See Earthquake Section in Hazard Identification Chapter for further explanation of risk.

planning area. For more information about how hazards affect the Region as a whole, see Chapter 4 Risk Assessment in the regional base plan.

Assets at Risk

This section identifies Morgan County's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets, and growth and development trends. Two data sources are used: assessed valuations, as available, and HAZUS-MR3 databases. The HAZUS building exposure (includes building counts, value of building structure and contents) is shown in Table 4.

Table 3. County Parcel Exposure

Type	Parcel Count	Value	Improved Parcel Count (\$)	Improved Value (\$)	Total Value
Residential	8994	210,995,240	10,669	913,913,700	1,124,908,940
Commercial	868	47,120,120	829	120,446,100	167,566,220
Industrial	57	10,055,110	68	50,176,340	60,231,450
Agricultural	4,503	79,241,640	1,195	62,602,050	141,843,690
Government					
Education					
Vacant Land	789	15,694,830	54	943,980	16,638,810
Exempt	619	7,721,865	262	126,040,130	133,761,995
State Assessed	19		19	83,798,630	83,798,630

Value is listed as Actual Value for the 2008 Tax Roll collected in 2009.

Value is based on a June 30th, 2006 level of value.

Table 4. Building Exposure by Jurisdiction

City	Population	Building Count	Building Exposure (\$)	Building Content (\$)	Total Exposure (\$)
Brush	5454	2152	213,165,900	149,216,130	362,382,030
Fort Morgan	11304	4376	462,854,940	323,998,458	786,853,398
Hillrose	264	144	6,524,080	4,566,856	11,090,936
Log Lane Village	871	348	11,416,210	7,991,347	19,407,557
Wiggins	896	427	30,773,160	21,541,212	522,314,372

Unincorporated	9417	5649	633,186,640	44,230,648	1,076,417,288
Total	28206	13096	1,357,920,930	950,544,651	2,308,465,581

Source: HAZUS MH MR3

Critical Facilities and Infrastructure

An inventory of critical facilities in Morgan County is provided below in Table 5. The table includes data from available statewide GIS resources (locations are illustrated in Figure 1) supplemented with information from the Morgan County CPS.

Table 5. Critical Facilities Inventory

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
Essential Infrastructure				
Airports (paved)	2			City owned
Communications Towers	5			Private/County
Correctional Facilities	2			Private/ County
Electrical Generation/Distribution	13			3 Gen/ 10 Dist
Media Outlets	5			News paper/radio
National Guard	n/a			
Public Safety Communications Centers	1			County
Public Safety Facilities				
Police Stations	5			
EMS/Ambulance Stations	3			
Fire Stations	8			
EOCs	3			City/County
Town/City Halls	5			
Wastewater Treatment	5			
Water Utilities/Treatment	3			Private/City
Childcare Centers				
Schools	14			
Shelters	2			
Hospitals	2			
Clinics	4			

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
Nursing Homes/Assisted Living Centers	8			
Natural, Cultural and Historic Resources				
Community Centers	3			
Historic Properties	14			
Hazardous Materials				
Extremely Hazardous Substances	298			
Hazardous Chemicals storage	63			

Natural and Historic Assets

Brush

- All Saints Church of Eben Ezer, aka All Saints Lutheran Church
- German Evangelical Immanuel Congregational Church aka Immanuel Congregational Church
- Ebenezer Lutheran Care Center
- Knearl School
- Carroll Hotel
- Central Platoon (Elementary) School
- Residence at 720 Cameron

Ft. Morgan

- Rainbow Bridge, Fort Morgan
- Power Station, Ft. Morgan
- Main Street District, Fort Morgan
- Historic City Hall, Fort Morgan
- Armory, Fort Morgan
- Morgan Community College,
- Bloedorn Center for Community Economic Development
- Houses on 400-500 block of Sherman, Fort Morgan
- Farmer's State Bank Building
- U.S. Post Office- Ft. Morgan Main

Wiggins

-
- Old Trail School (Reed School)

County

- Old Sheriff's Office, County
- Morgan County Courthouse and Jail

Development Trends in Morgan County

- *Wiggins* is growing to the south and east
- *Brush* is growing to the West
- *Fort Morgan* is growing to the southwest
- *Hillrose* has no trend. Does have a 4,500 head dairy.
- *County* is growing West of Highway 52 and south of County Road W.

Floodplain Vulnerability Assessment

The best available flood data for Morgan County was generated by HAZUS-MH MR3, FEMA's software program for estimating potential losses from disasters. See the base plan vulnerability assessment for a description of the HAZUS methodology. The 100-year floodplain generated with HAZUS-MH is shown countywide in Figure 1 and at municipal scales in Figure 2. Both maps indicate the location of critical facilities as well.

Figure 1. Morgan County HAZUS 100-year Floodplain and Critical Facilities Map

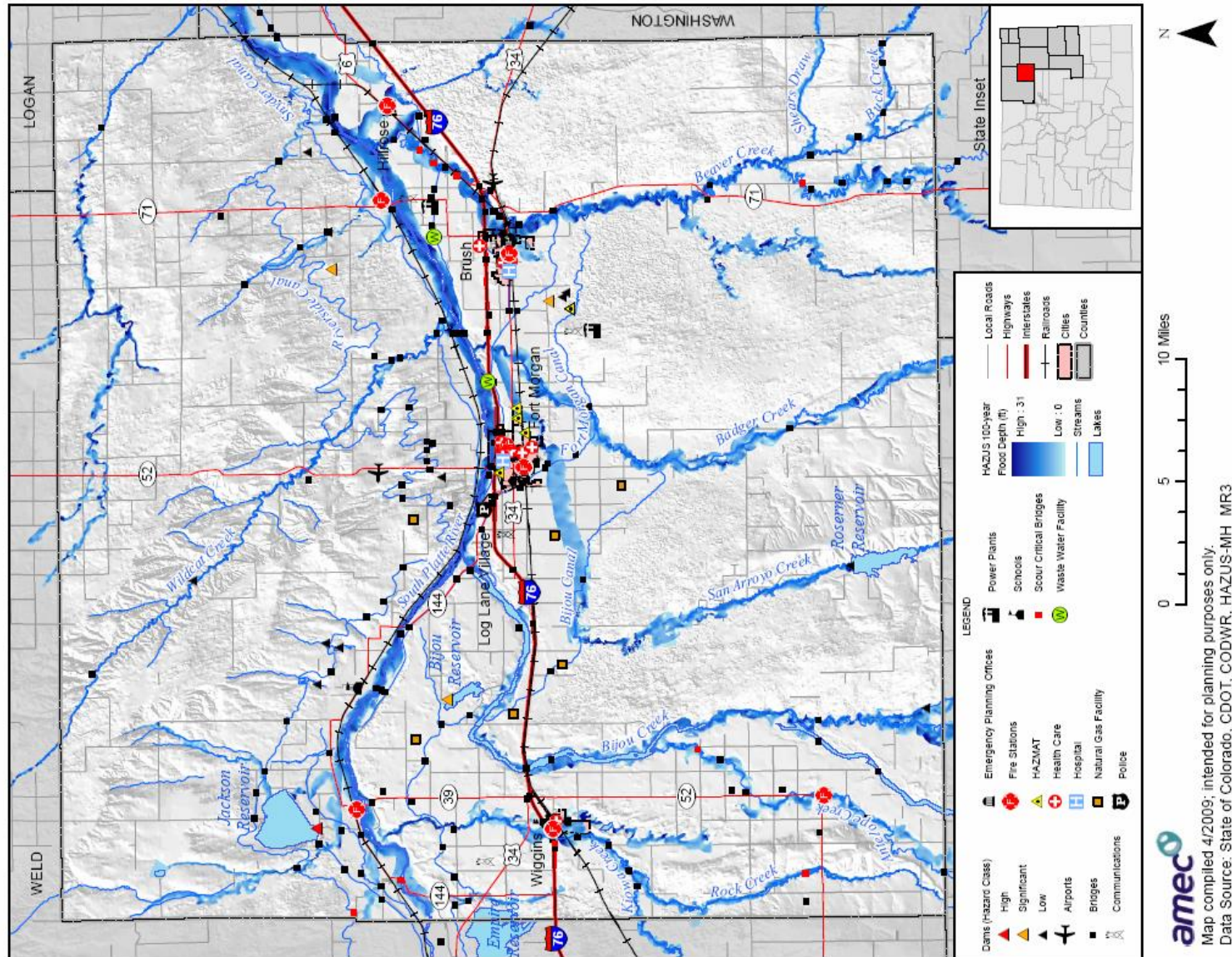
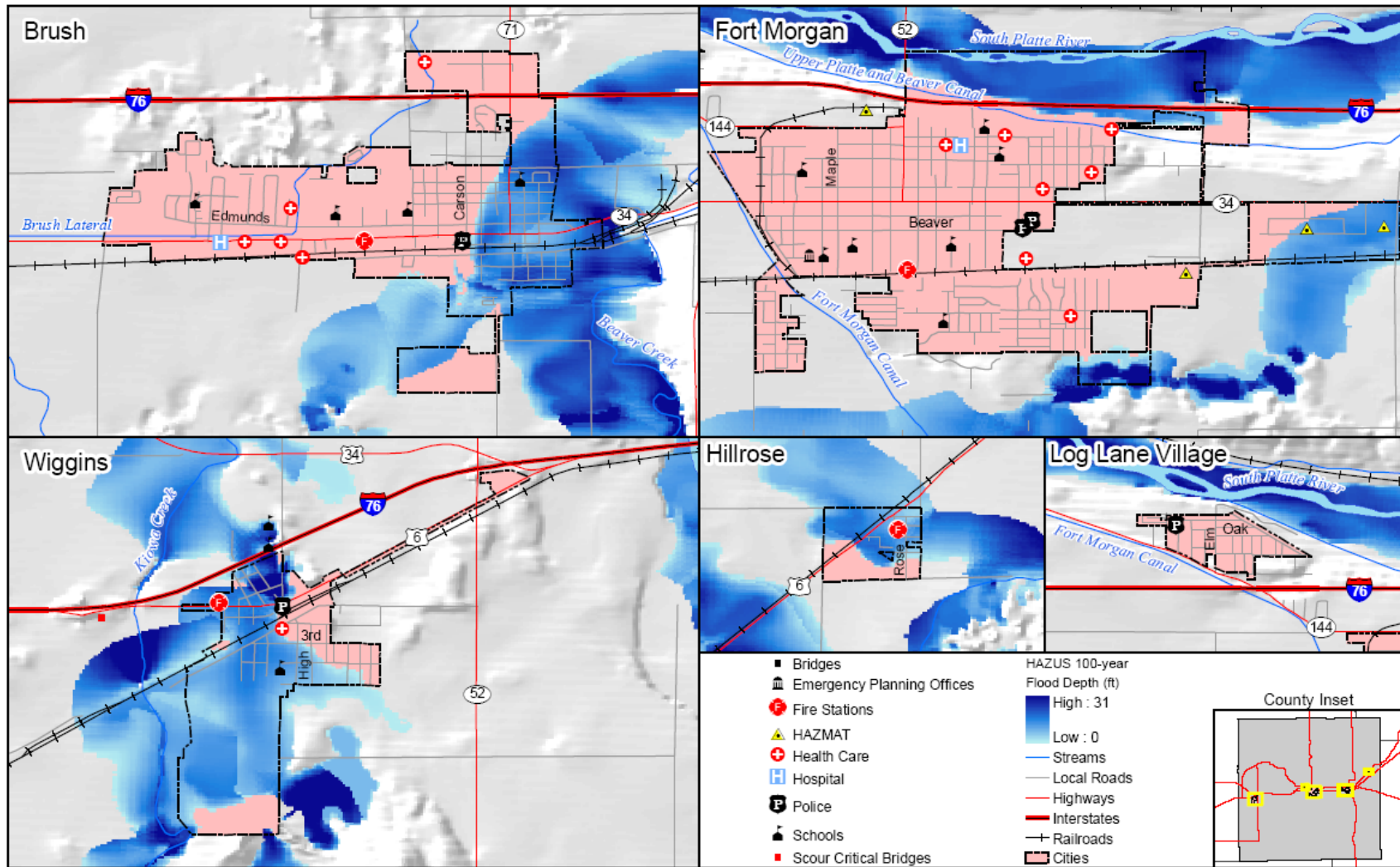


Figure 2. Morgan County Cities HAZUS 100-year Floodplain and Critical Facilities Map



Map compiled 4/2009; intended for planning purposes only.
Data Source: State of Colorado, CDOT, CODWR, HAZUS-MH MR3

HAZUS-MH estimates the potential for over \$97 million in flood losses from a 100-year flood in the County. Morgan County has the second highest potential for flood losses in the region (behind Weld), and is followed by Morgan County. To estimate the monetary loss for each city, the flooded Census Blocks were extracted, and the damage costs were totaled using GIS. This was done for each city and unincorporated area to illustrate how the risk varies across the planning area, with the results summarized in 0. According to HAZUS-MH, the City of Brush has the greatest flood risk and majority of the damage with \$38,481,000 followed by the City of Wiggins with damage of \$15,745,000. Fort Morgan has damage of \$8,353,000 and Hillrose has \$2,862,000 worth of damage. The map in Figure 3 displays the distribution of the flood loss by Census Block across the County. According to the map in Figure 1, the majority of flood impacts in the unincorporated County are located on Beaver Creek which goes by the City of Brush and Kiowa Creek that impacts the City of Wiggins.

Table 6. Estimated Economic Losses from Flooding

Jurisdiction	Cost Building Damage	Cost Contents Damage	Inventory Loss	Relocation Loss	Capital Related Loss	Rental Income Loss	Wage Loss	Total Loss	Percent of Total Loss	Loss Ratio
Brush	\$14,889,000	\$22,714,000	\$560,000	\$53,000	\$89,000	\$19,000	\$157,000	\$38,481,000	39%	5.4%
Fort Morgan	\$2,500,000	\$5,116,000	\$706,000	\$6,000	\$8,000	\$6,000	\$11,000	\$8,353,000	9%	0.4%
Hillrose	\$1,570,000	\$1,259,000	\$4,000	\$7,000	\$5,000	\$1,000	\$16,000	\$2,862,000	3%	14%
Log Lane Village	-	-	-	-	-	-	-	-	-	-
Wiggins	\$5,381,000	\$10,019,000	\$135,000	\$16,000	\$53,000	\$5,000	\$136,000	\$15,745,000	16%	11.7%
Unincorporated	\$14,890,000	\$16,164,000	\$801,000	\$24,000	\$40,000	\$6,000	\$111,000	\$32,036,000	33%	3.2%
Total	\$39,230,000	\$55,272,000	\$2,206,000	\$106,000	\$195,000	\$37,000	\$431,000	97,477,000	100%	2.7%

Source: HAZUS MH MR3

The building damage loss ratio shown in 0 is an indication of the community's ability to recover after an event. Building Damage Loss Ratio percent is calculated by taking the Building Structural Damage divided by Building Structural Value and then multiplying by 100. Loss ratio exceeding 10% are considered significant by FEMA. The cities with the highest building damage loss ratio are Hillrose and Wiggins. Hillrose has the highest loss ratio of 14% with a potential building damage loss of \$1,570,000. Wiggins has the second highest loss ratio of 11.7% with a potential building damage loss of \$5,381,000. Brush is next with a loss ratio of 5.4% and a potential building damage loss of \$14,889,000. Last is Fort Morgan with a loss ratio of 0.4% and a potential building damage loss of \$2,500,000.

The Morgan County floodplain administrator noted that in some cases the HAZUS flood risk was underestimated (Brush), but possibly overestimated in Merino, Wiggins, and Fort Morgan, based on comparisons with the Flood Insurance Rate Maps (FIRM). The other communities cannot be compared since there are not any effective flood maps for them. As far as the comparison of Fort Morgan and Wiggins, the city limits have expanded since the FIRM was created so there is actually more flooding represented by the HAZUS model. The unincorporated

floodplains within the HAZUS model match up closely to the ones on the effective FIRMs however there are some streams that are not represented by HAZUS. The reason these streams were not calculated within the model is due to the fact that these streams have less than 10 square mile drainage areas, which was the minimum drainage area modeled with HAZUS.

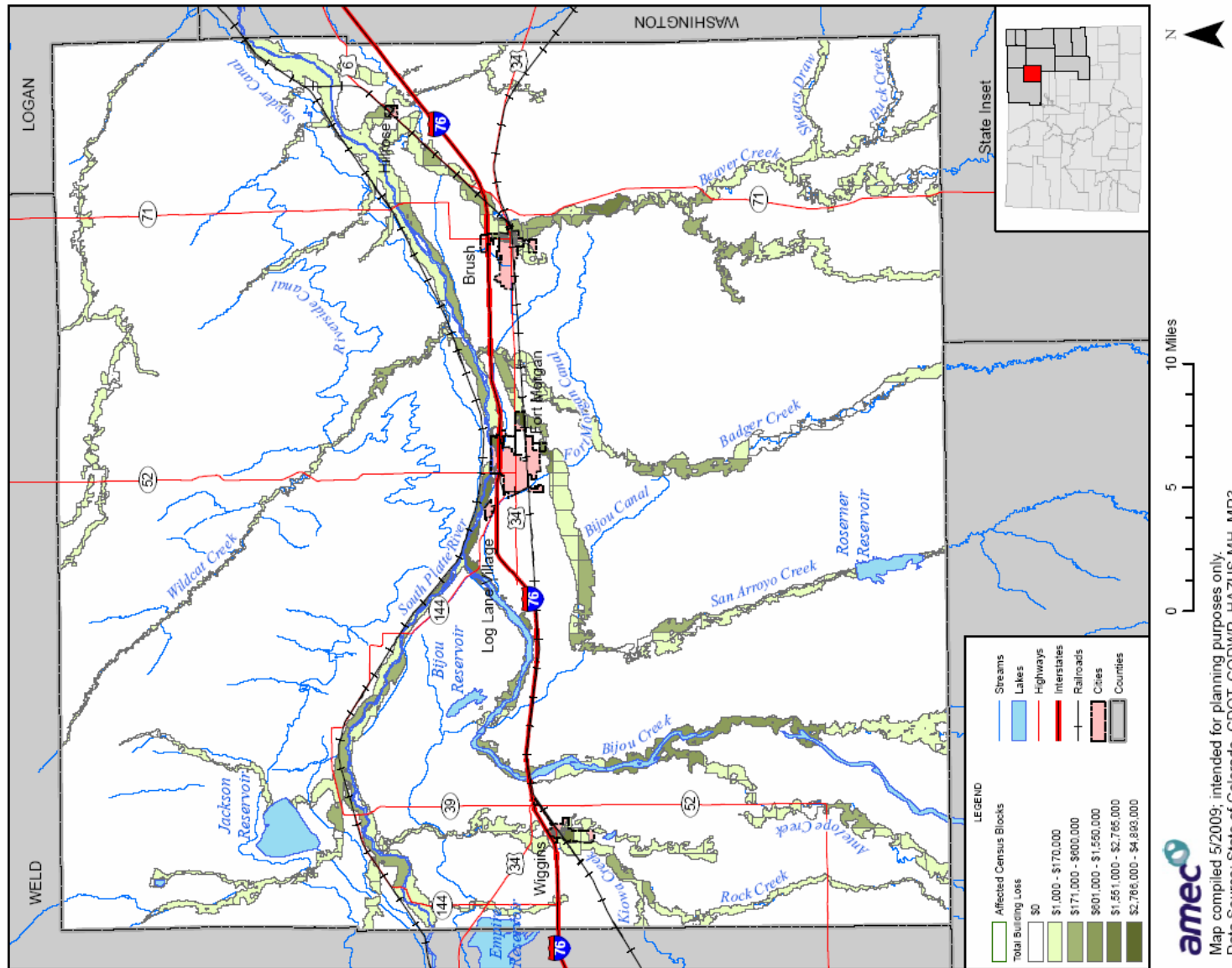
A floodplain inventory conducted in 2004 yielded the following information:

Brush Inventory: 935 buildings in mapped 100-year floodplain with an actual value of \$63,583,252
39% of Brush is in the floodplain. 100-yr flood would average 2 deep, causing a 20% loss or \$12.7 million in damage.

Ft. Morgan Inventory: 1 building in floodplain, the Public Works storage facility (City is out of floodplain)

No other communities were inventoried due to lack of mapping or vast rural areas in the unincorporated County.

Figure 3. Morgan County Building Loss in the 100-year Floodplain



Floodplain Population Information

Morgan County is at a moderate risk for flooding, but major flood disasters have occasionally caused serious flood impacts to people and property, most recently in 1997 and 2013, when Morgan County was declared a Presidential Disaster and eligible for FEMA Public and Individual Assistance. The displaced population and shelter needs estimated by HAZUS are shown in 0. HAZUS estimates nearly a thousand more people potentially at risk.

Table 7. Population Displaced by Flooding

Jurisdiction	Displaced Population	Population Needing Shelter
Brush	1,330	723
Fort Morgan	77	61
Hillrose	214	96
Log Lane Village	-	-
Wiggins	491	249
Morgan County	1,376	488
Total	3,488	1,617

Source: HAZUS MH-MR3

Critical Facilities

Critical facilities in the floodplain were determined using GIS, by selecting all critical facilities that fell within the floodplain. These are listed in 0 and shown on the maps in Figures 2 and 3.

Table 8. Critical Facilities in the Floodplain

Flooded Critical Facility	Name	Near City
Fire Station	Hillrose-Snyder Fire Dept Station 1	Hillrose
Fire Station	Wiggins Fire Protection Dist Station 1	Orchard
HAZMAT	Homes by Oakwood	Fort Morgan
HAZMAT	Leprino Foods Co.	Fort Morgan
HAZMAT	Leprino Foods Co.	Fort Morgan
Police	Wiggins Police Dept Headquarters	Wiggins
School	Wiggins Elementary School	Wiggins
School	Wiggins Junior-Senior High School	Wiggins
School	Brush Middle School	Brush
Waste Water Facility	Fort Morgan, City of	Fort Morgan

Morgan County Scour Critical Bridges

Included with HAZUS-MH is a database of bridges called the National Bridge Inventory developed by the Federal Highway Administration. One of the database items is a “scour index”, which is used to quantify the vulnerability of a bridge to scour during a flood. Bridges with scour index between 1 and 3 are considered “scour critical”, or a bridge with a foundation element determined to be unstable for the observed or evaluated scour condition.

There are 9 scour critical bridges in Morgan County. They are all located on the local roads, major roads and highways that travel through the County. One scour critical bridge is located just west of the city limits of Wiggins on US 6 at the intersection of Kiowa Creek. Two are northwest of Wiggins, one is on County Road Y at the intersection of the Riverside Canal and the other is on State Highway 144 at the South Platte River. Two more are south of Wiggins, one on County Road K that is on Antelope Creek and the other is located at State Highway 52 and Rock Creek. One is south of Brush on County Road 30 at Beaver Creek. Three are located between Brush and Hillrose, one on US Highway 6 at Beaver Creek, one on County Road 31 at the intersection of Beaver Creek and the other bridge is located on County Road V at Beaver Creek. The location of these bridges is shown in Figure 1, and is detailed in Table 9.

Table 9. Scour Critical Bridges

Name	Road Type	Stream	Near City
County Road K	Local Road	Antelope Creek	South of Wiggins
County Road 30	Local Road	Beaver Creek	South of Brush
County Road 31	Local Road	Beaver Creek	Between Brush and Hillrose
County Road V	Local Road	Beaver Creek	Between Brush and Hillrose
US 6	Rural Highway	Beaver Creek	Between Brush and Hillrose
US 6	Rural Highway	Kiowa Creek	Wiggins
County Road Y	Local Road	Riverside Canal	Northwest of Wiggins
State Highway 52	Rural Highway	Rock Creek	South of Wiggins
State Highway 144	Rural Highway	South Platte River	Northwest of Wiggins

NFIP Claims Analysis

There are 193 policies in force in Morgan County. Detail is shown in Table 10. The majority of policy holders are in the 100-year floodplain (A-Zone) and the City of Brush has the large majority of policy holders.

Table 10. Policies and Claims Information

Community Name	No. Policies	Total Coverage	Total Claims since 1978	Total Paid since 1978
Morgan County	175	\$17,004,200	28	\$58,807

Source: Colorado Flood Hazard Mitigation Report, CWCB (November 2013)

Repetitive Loss Properties

There are no documented repetitive loss properties in the County.

Community Rating System

The City of Brush entered the CRS system on October 1, 1994. As of 12/2008, the City maintains current status and is rated as a 9, with a 5% discount for both Special Flood Hazard Area (SFHA) and non-SFHA policies.

Dam and Levee Failure Vulnerability Assessment

According to HAZUS MR3, there is 1 high and 3 significant hazard dams in Morgan County. 01 indicates how dam failure risk varies among communities in Morgan County. The locations of these dams are shown in Figure 1.

Table 11. Hazardous Dams in Morgan County

Dam Name	County	Max Storage (acre ft)	Dam Hazard	Downstream Community	Miles to Community	Relative Downstream Impacts
Pawnee Raw Water	Morgan	3,695	Significant	Brush	3	Negligible
Bijou #2 (Dams 1-4)	Morgan	10,556	Significant	Fort Morgan	6	Limited
Jackson Lake	Morgan	47,000	High	Goodrich	2	Critical
Vancil	Morgan	9,000	Significant	Snyder	3	Negligible

Source: HAZUS MR3

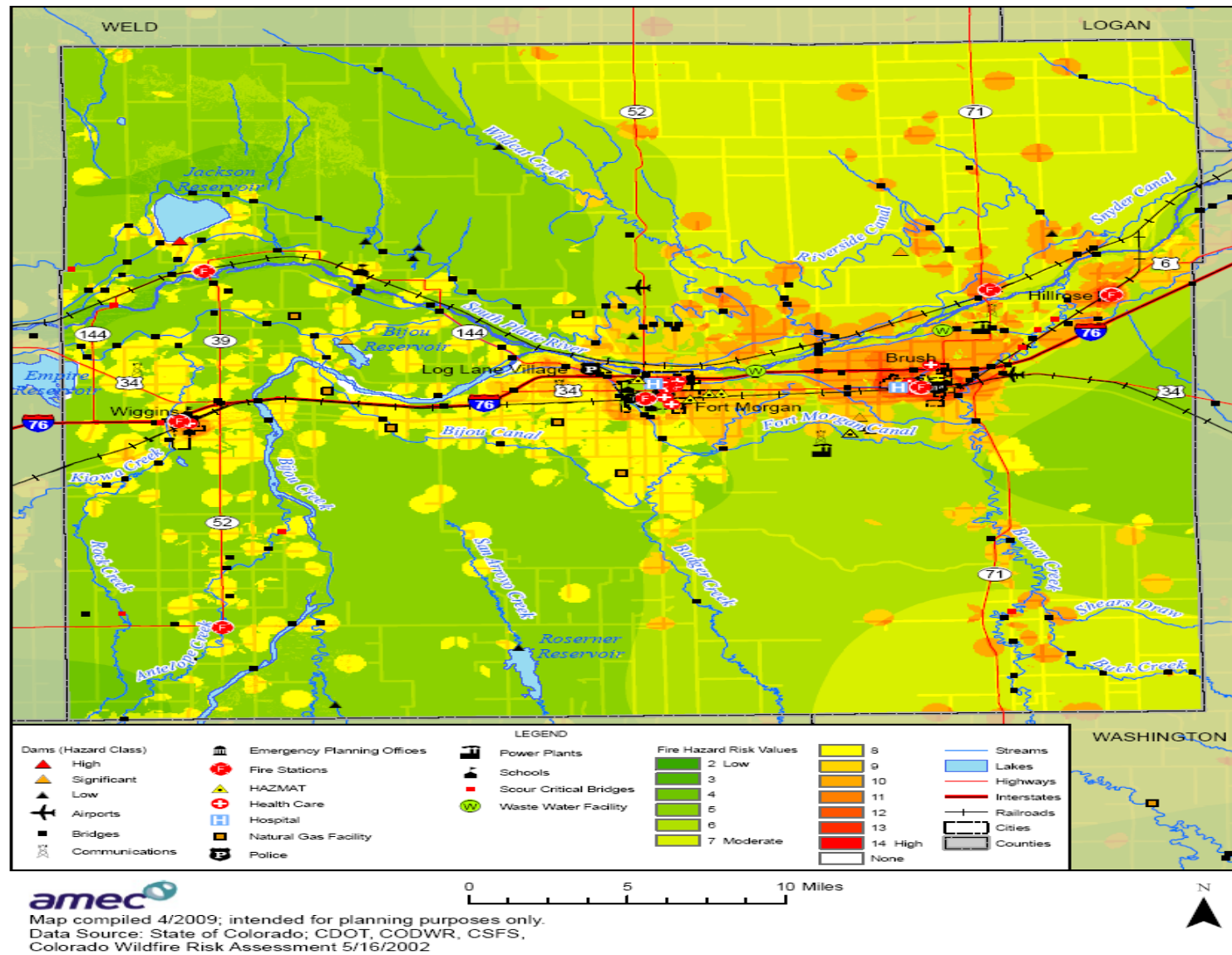
Weldona (unincorporated) and Wiggins are protected by levees; The HAZUS flood modeling does not take into account the existing levee protection, and thus the flood loss potential mentioned previously represents a levee failure event. The Wiggins levee protects the town from flooding on Kiowa Creek. The Wiggins flood levee requires human intervention through the insertion of flood gates across the cut in the levee at Highway 6 to be effective.

Wildfire Vulnerability Assessment

Morgan County Wildland Urban Interface

The Wild land Urban Interface map for Morgan County shows low to high fire hazard risk values. The majority of the County has low values with the higher values around the communities of Brush, Hillrose, Fort Morgan, Log Lane Village and Wiggins. Hillrose has the highest fire risk in the County with values between moderate and high with the higher values within the city limits. Brush has a moderate risk value where the majority of commercial and residential areas are located. However, high values are along the city limits and surrounding unincorporated county. Fort Morgan, Log Lane Village and Wiggins have moderate risk values and the City of Fort Morgan has a mixture of low to high fire values.

Figure 4 Morgan County Wild land Urban Interface



Critical Facilities

A GIS overlay was used to identify certain facilities in the moderate to high fire risk areas. The facilities identified within a moderate to high wildfire risk area are summarized in Table 12. The following narrative describes each community and potentially at risk critical facilities.

Morgan County has the third highest number of facilities in a moderate to high fire hazard with 211. Brush has nineteen facilities in the fire hazard: two bridges, one emergency planning office, one bridge, nine health care, one hospital, one police station and four schools. Fort Morgan has twenty one facilities in the moderate to high fire hazard: six bridges, five HAZMAT facilities, six health care, one hospital, one police station and two schools. Hillrose has one fire station in the fire hazard. Log Lane Village has one police station. Wiggins has four facilities in the fire hazard: one fire station, one health care, one police station and one school. The unincorporated county has 165 critical facilities in the fire hazard: one airport, 131 bridges, six scour critical bridges, five communication towers, eight dams, two fire stations, three natural gas facilities, one police station, one power plant, five schools and two waste water facilities.

Table 12. Critical Facilities Subject to Fire Hazard (by type)

Facility Type	Facility Count
Airports	2
Bridges	139
Communications	5
Dams	8
Emergency Planning Offices	3
Fire Stations	5
HAZMAT	5
Health Care	16
Hospital	2
Natural Gas Facility	3
Police	5
Power Plants	3
Schools	12
Scour Critical Bridges	6
Waste Water Facility	5

Facility Type	Facility Count
Total	211

Agricultural Vulnerability Assessment

Agriculture is an important aspect of the County's economy. The following discussion analyzes the potential losses from floods using HAZUS and multiple hazards from federal crop insurance records.

HAZUS Methodology for Agriculture Economic Losses

The agriculture component of the HAZUS Flood Model estimated a range of losses to barley, corn, corn silage, oats and wheat. These crops were the only crops identified by the HAZUS model to have loss within the region of study. The model assumes a short duration and slow rise flood when estimating losses and does not account for high velocity flash floods. Loss estimates are based on United States Army Corp of Engineers (USACE) damage modifiers. The HAZUS-MH impact analysis predicts a loss estimate value by crop for flow time intervals. The first is a loss estimate for the day of the fixed event; the remaining three are for 3, 7 and 14 days following the event.

The agricultural products in Morgan County that show economic loss from floods are barley, corn, corn silage, oats and wheat. Barley's total loss is \$2,931,722, corn's total loss is \$31,893,290, corn silage's total loss is \$123,399,931, oats total loss is \$10,597,322 and wheat's total loss is \$25,081,042. The total loss of all of these products is \$193,903,306. More detail is given in Table 13.

Table 13. Morgan County Direct Economic Loss for Agriculture Products from Flooding

Agriculture Product	Crop Loss Day 0 (\$)	Crop Loss Day 3 (\$)	Crop Loss Day 7 (\$)	Crop Loss Day 14 (\$)	Total Loss (\$)
Barley	0	799,560	1,066,081	1,066,081	2,931,722
Corn	0	8,698,170	11,597,560	11,597,560	31,893,290
Corn Silage	0	33,654,527	44,872,702	44,872,702	123,399,931
Oats	0	2,890,179	3,853,572	3,853,572	10,597,322
Wheat	0	6,840,284	9,120,379	9,120,379	25,081,042
Total	0	52,882,720	70,510,293	70,510,293	193,903,306

Source: HAZUS-MH MR3

Crop Insurance Analysis

Federal Crop Insurance Data represents losses from multiple hazards that could include: biological hazards, flooding, drought, hailstorms, noxious weeds, temperature extremes, tornados, wildfires and straight-line winds. Average annual claims payout amount to \$1.5 million in the County. More details are provided in Table 14 and Table 15.

Table 14. Morgan County Premium and Loss Data for Federal Crop Insurance from 1980 through 2007

Liability(Amount of Coverage)	Total Premium	Federal Premium Subsidy	Farmer-paid Premium	Amount Paid in Claims	Average Amt. Paid Annually in Claims
380,703,905	37,799,950	19,320,525	18,479,425	42,561,929	1,520,069

Source: Federal Crop Insurance Services

Table 15. Morgan County Crop Insurance Data, 2008 – 2013

Year	Liability	Total Premium	Federal Premium Subsidy	Farmer Paid Premium	Amount Paid Claims
MORGAN COUNTY					
2008	\$42,034,415	\$6,204,621	\$3,547,945	\$2,656,676	\$6,478,840
2009	\$42,478,316	\$7,453,667	\$4,270,491	\$3,183,176	\$4,038,322
2010	\$38,595,337	\$5,271,638	\$3,031,790	\$2,239,848	\$1,317,388
2011	\$60,962,982	\$7,849,896	\$4,584,121	\$3,265,775	\$2,183,620
2012	\$60,660,179	\$7,285,610	\$4,233,414	\$3,052,196	\$4,550,360
2013	\$58,715,882	\$7,283,335	\$4,210,104	\$3,073,231	\$8,151,295
Total	\$303,447,111	\$41,348,767	\$23,877,865	\$17,470,902	\$26,719,825

Morgan County Morgan County Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided two sections: regulatory mitigation capabilities and additional mitigation projects and capabilities. The regulatory mitigation capabilities for the County and its municipalities are summarized in Table 16. Refer to the Introduction to the County Elements for an explanation of the capability assessment matrix.

Table 16. Regulatory Mitigation Capabilities

	MORGAN	Brush	Ft. Morgan	Log Lane Village	Hillrose	Wiggins
Comp Plan	Y	Y	Y		Y	
Land Use Plan	Y		Y		N	
Subdivision Ord	Y	Y	Y		N	
Zoning Ord	Y	Y	Y		Y	
Evacuation Plan	Y	C	C	C	C	C
NFIP/FPM Ord	Y	Y	Y	N/A	N/A	Y
- Map Date	2/89 - FIRM	10/81- FIRM	2/86 (M) – FIRM	Not Mapped	Not Mapped	2/79 - FIRM
- Sub.Damage?			Y		N/A	
- Administrator?	Y	Y	Y		N/A	
- # of FP Bldgs?	0	935	1	0	N/A	
- # of policies		113+11	1		N/A	
- # of RL's?		0	0		N/A	
CRS Rating	N/A	N/A	N/A		N/A	
Storm water Program	Y	Y	Y		N	
Building Code	Y	Y	Y-UBC '97		N	
Building Official.	Y	Y	Y		Limited	
- Inspections?	Y	Y	Y		Limited	
BCEGS Rating		Y-9	N		N	
LEOP	Y	C	In Progress	C	C	C
HM Plan	Y	Y	Y	C	C	C
Warning	Y	y	Y	y	y	y
Storm Ready?	Y	C	C	C	C	C
Weather Radio?	Y	Y	Y		Y	
Sirens?	Y	Y	Y	Y	Y	Y
Emergency Warning Notification?	Y	C	C	C	C	C

	MORGAN	Brush	Ft. Morgan	Log Lane Village	Hillrose	Wiggins
Other?	Y-EAS/Amber	Y-EAS	Y-EAS AMBER		Y-EAS	
GIS System	Y	CADD	Y		N	
Structural Projects	Y		Y		N	
Property Protection	Y	Y	Y		N	
Crit.Fac.Protection	N/A	N	Backup Power		N	
Natural Res. Inv.	Y		Y	Y	N	
Cultural Res. Inv.	Y	Y	Y		N	
Erosion Control	Y	Y	Y		N	
Sediment Control	Y	Y	N		N	
Pub. Info Prgm	Website, public service announcement, hazard catalogs, civic talks		Y		Y	
Env. Ed Prgm	Y		Y		N	

NFIP Mapping Information:

Brush: Panel # 080103, 10/13/81

Ft. Morgan: Panel # 08013, 2/5/86

Hillrose: not mapped

Log Lane Village: not mapped

Wiggins: Panel #080204, mapped in 2/15/79; now protected by a levee

County: Panel #080129, 22 panels + index, 9/29/89, Q3 data available

Other Mitigation Capabilities (Projects in Place)

- The County, Brush, Fort Morgan and Wiggins all participate in the National Flood Insurance Program.
- Morgan County was Project Impact Community
 - Safe Room installed

-
- Safe Room Model constructed/available (scale and full size)
 - County is NWS Storm Ready Certified
 - Weldona Flood Levee constructed (1999-2001)
 - Weldona Valley Day Care facility is elevated above floodplain and has safe-room installed
 - Wiggins has a Flood Levee
 - Wiggins Elementary has safety glass and film installed
 - Snyder is reported to be subject to flooding, but a new bridge is said to have eliminated much of this problem.
 - Snyder has a flood levee
 - Flood retention pond at CR 15 & CR R (protecting roadways)
 - County received FMA funding for flood proofing projects (paid for floodgates, 8 in Brush, and 7 in Ft. Morgan)
 - Safety glass on school windows in Brush!
 - Spotter Network, Recent training, April 2013
 - The County received a Storm Ready designation from the National Weather Service in 2001 and Morgan County was in the Project Impact Program as a 1999 community. The County utilizes a variety of warning system capabilities, including outdoor warning sirens, cable override, radio/pagers, local radio stations, Everbridge Integrated Public Alert Warning System and NOAA weather radios. There is an evacuation plan. Public information outreach includes public service announcements, hazard catalogs, and civic talks. GIS is starting from the ground up and is expected to be of benefit to all agencies.

Potential/Current Mitigation Projects:

- Local hazard, fire and flood mitigation plans, siren upgrades for Towns of Hillrose, Snyder and Weldona; additional sirens; tornado and severe weather shelters; determine best mitigation options for the nine critical facilities located in a floodplain in Brush; conduct a targeted flood insurance campaign; Town of Bush storm water project; hazards awareness campaigns.

Morgan County Mitigation Goals & Recommendations

County Priorities from Project Impact:

- Provide Education & Public Information
- Establish an Emergency Warning Notification System
- Support and Implement Mitigation Measures for Flooding and Tornadoes

Goal: Increase Public Awareness Regarding Potential Hazard Losses and Protective Measures

Action Item #1: *Brush should undertake a targeted Public Education program for the 822 uninsured flood prone property owners.*

Issue Statement: Of the 935 properties identified within the mapped floodplain of Brush, only 113 carry flood insurance policies issued through the NFIP. Brush should undertake a public information campaign to ensure that flood prone property owners and occupants are aware of the availability of flood insurance through the NFIP, and the limitations of other insurance policies they might own.

Implementation Manager and strategy: The Morgan County Emergency Manager in conjunction with the local officials in Brush responsible for enforcing the floodplain management ordinance. They should provide information describing the availability and benefits of flood insurance through the NFIP, as well as information of the likelihood of flooding and the consequences of flooding.

Priority: High

Cost Estimate: Existing budgets. Obtain existing public information brochures on flood insurance and flood damages and provide to flood prone property-owners. Monitor the number of insurance policies in force, and repeat as necessary.

Cost-Effectiveness Explanation: There is no increased cost to the Town. The benefits are to building owners/occupants who choose to insure against flood losses, and to taxpayers who no longer would have to subsidize those losses.

2014 Update: This project is ongoing. Citizens have the mindset that flooding will not happen to them, rendering flood insurance unnecessary. This project will be continued, as it is relevant to all who may or do live in a flood plain.

Action Item #2: *The County and Brush, Fort Morgan and Wiggins will continue to comply with the National Flood Insurance Program in part by providing “Refresher Training” for local lenders and insurance agents regarding the NFIP, publicize the NFIP, and promote the purchase of insurance for structures in the floodplain.*

Issue Statement: The significant lack of flood insurance in Brush raises the question whether or not elements of the NFIP are being properly implemented. Specifically, a requirement of any federally backed mortgage, including recent re-finances, within an identified floodplain is to purchase and maintain flood insurance throughout the life of the loan. A common area where this mandate is subject to error is through lenders and insurers. Specific training can be provided for these audiences free of charge.

As participants in the NFIP the County, Brush, Fort Morgan and Wiggins will continue to promote wise use of floodplains through ordinance administration and periodic update, and staff training, including encouragement of Certified Floodplain Manager status. Morgan County will consider the cost/benefit of joining the NFIP CRS program.

Implementation Manager and strategy: Morgan County Emergency Manager, in conjunction with the Brush, Fort Morgan, and Wiggins Floodplain Management Administrator should invite the CWCB to conduct “Refresher Training” for both lenders and insurance agents. CWCB, CO-OEM and FEMA can also provide public information brochures describing the benefits of purchasing flood insurance. Each community should annually notify flood prone occupants of their location and of the availability of flood insurance.

Priority: High

Cost Estimate: Can be accomplished within existing budgets or with minimal expense.

Cost-Effectiveness Explanation: There is little or no increased cost to the Town. The benefits are to flood prone building owners who choose to insure against flood losses, and to taxpayers who no longer would be faced with subsidizing those potential losses.

2014 Update: This project is ongoing and will continue indefinitely. Insurance brokers have pamphlets about NFIP and encourage clients to take advantage of this insurance. This action was modified during the 2009 update to include continued NFIP participation for the NFIP communities in the County.

Action Item #3: *Brush should undertake a public works program to protect community facilities that would be critical to remain functioning in the event of a flood. Such “critical facilities” might include power substations, water supply pumps, sewage lift stations, and emergency response buildings like the police and fire stations. Typical protection methods include small walls, backflow valves, earthen berms, and elevation of critical components.*

Issue Statement: Most “critical facilities” of Brush lie within the floodplain. Protecting them from flood damages would ensure that they would remain functioning when needed most

Implementation Manager and strategy: Brush Public Works in conjunction with the Morgan County Emergency Manager, CWCB, CO-OEM and FEMA.

Priority: High

Cost Estimate: Unknown at this time. depends upon the number of facilities and the design of the solutions. Some small projects should be able to be worked into existing budgets. Larger projects will require grants (CDBG, FMA, FEMA/PDM or HMGP).

Cost-Effectiveness Explanation: The benefits are to the community in being more prepared to realistically address the emergency management concerns of a flood in their community. One can calculate the additional damages that would be incurred if the power, water, and sewage were to fail, and emergency response was slowed or inhibited.

2014 Update: Some work has been accomplished (dirt berms around some of the sites, sloping the landscape away from the buildings). This has been especially relevant to structures noted as specific critical facilities. The project is ongoing with no specific completion date.

Action Item #4: *Wiggins should conduct a full-scale exercise to practice closing the floodgate that seals the levee protecting the community.*

Issue Statement: Significant portions of Wiggins are subject to flooding if the levee protecting the community cannot be properly sealed in a timely manner. Additionally, residents are at increased risk because when the levee was constructed the community was administratively “removed” from the floodplain --- eliminating the requirement for flood prone building owners to purchase and maintain flood insurance coverage for their property. There are only 2 flood insurance policies in force in the town of Wiggins. The planning process identified a guardrail that runs along the road cut through the levee. CDOT has recently added a removable section (secured by bolts) to the guardrail that will allow a temporary gate to be put in place. The exercise would re-enforce how to seal the levee, the length of time required to remove the guardrail section and put the barriers in place, and to make sure they still have all the timbers required to seal the levee.

Implementation Manager and strategy: Wiggins Public Works, Morgan County Emergency Manager, and CDOT.

Priority: High

Cost Estimate: Can be accomplished within existing budgets.

Cost-Effectiveness Explanation: There is little cost associated with this project. The benefits are to the community in being more prepared to realistically address the emergency management concerns of a flood in their community.

2014 Update: Complete. This project will continue to be exercised annually to ensure that public works personnel know how to remove the guardrail, and the location and placement of the planks.

Action Item #5: *Brush should conduct the one-day flood recovery & mitigation exercise as an awareness tool for local officials and a separate short exercise with the 8 building owners to practice using the flood gates that were purchased and installed utilizing FMA funding.*

Issue Statement: Significant portions of Brush are built in and around the floodplain, and a flood would cause considerable damage and hardship within the community. Conducting this FEMA-developed, one-day flood exercise would allow local officials to identify and react to the many problems they would likely encounter, thus providing a pre-flood “to-do” list, as well as an increased awareness of what emergency actions to take in an actual post-flood situation. The exercise for the 8 building owners would re-enforce how to use the system, the length of time required to put the system in to place, and to make sure they still have all the pieces of hardware required to make the system work.

Implementation Manager and strategy: City/County Emergency Manager, in conjunction with CWCB, CO-OEM and FEMA.

Priority: Medium

Cost Estimate: Can be accomplished within existing budgets, or small (\$2,500) training grant.

Cost-Effectiveness Explanation: There is little cost associated with this project. The benefits are to the community in being more prepared to realistically address the emergency management concerns of a flood in their community.

2014 Update: Complete. Business owners have been given the gates to be used when rainwater is sufficient to cause flooding.

Action Item #6: *Fort Morgan should conduct a short exercise with the 9 building owners to practice using the flood gates that were purchased and installed utilizing FMA funding.*

Issue Statement: The exercise for the 7 building owners would re-enforce how to use the system, the length of time required to put the system in to place, and to make sure they still have all the pieces of hardware required to make the system work.

Implementation Manager and strategy: City/County Emergency Manager, in conjunction with CWCB, CO-OEM and FEMA.

Priority: Medium

Cost Estimate: Can be accomplished within existing budgets, or small (\$2,500) training grant.

Cost-Effectiveness Explanation: There is little cost associated with this project. The benefits are to the community in being more prepared to realistically address the emergency management concerns of a flood in their community.

2014 Update: Complete. Regular exercises planned.

Action Item #7: *Promote the benefits of the crop insurance to the County agricultural community*

Issue Statement: Agricultural losses are the #1 annual dollar loss in Morgan County. Over the past 20-years, policyholders have, on average, received a 4-to-1 return on their investment in this loss protection mechanism.

Implementation Manager and strategy: City/ County Emergency Manager, in conjunction with USDA and NRCS.

Priority: Medium

Cost Estimate: Can be accomplished within existing budgets

Cost-Effectiveness Explanation: There is little cost associated with this project. The benefits are in receiving compensation for otherwise lost agricultural revenue, which in turn, contributes significantly to the County economy.

2014 Update: Complete. Vast majority of farm/ranch operations are now insured.

Action Item #8: *Maintenance of Weldona Flood Levees – Morgan County.*

Issue/Background: Levees were built to prevent water from coming into the Town of Weldona when the Town was flooded in 1997. Heavy downpours caused flooding and a ditch to break open.

Other Alternatives:

Responsible Office: Morgan County OEM, Morgan County Road and Bridge

Priority (High, Medium, Low): Medium

Cost Estimate: Minimal

2014 Update: This project will be ongoing (on a biannual basis) to ensure that the weeds and saplings in the levee are cleared so banks are not compromised.

Action Item #9: *Flood Mitigation – City of Brush*

Issue/Background: Downtown businesses are at risk in a torrential downpour. The current storm system is undersized for run off from a large storm.

Other Alternatives: Research storm system and replace.

Responsible Office: Morgan OEM and City Government

Priority (High, Medium, Low): high

Cost Estimate: unknown

2014 Update: Brush has completed a storm water project in the Down Town Main District area (2013).

Action Item #10: *Flood Gates Exercise – City of Brush*

Issue/Background: Flood gates are used to keep storm water from entering through the back of downtown businesses. The desire is reduce damage to business contents.

Other Alternatives:

Responsible Office: Morgan County OEM

Priority (High, Medium, Low): Medium

Cost Estimate: N/A

2014 Update: Ongoing

Action Item #11: *Flood Mitigation – City of Fort Morgan*

Issue/Background: Downtown businesses are at risk in a torrential downpour. The current storm system is undersized for run off from a large storm.

Other Alternatives: Research storm system and replace

Responsible Office: Morgan OEM and City Government

Priority (High, Medium, Low): High

Cost Estimate: Unknown

2014 Update: Complete. Fort Morgan has completed a storm water project in the Down Town Main District area (2012).

Action Item #12: *Flood Gates Exercise – City of Fort Morgan*

Issue/Background: Flood gates are used to keep storm water from entering through the back of downtown businesses. The desire is reduce damage to business contents.

Other Alternatives:

Responsible Office: Morgan County OEM

Priority (High, Medium, Low): Medium

Cost Estimate: N/A

2014 Update: Ongoing activity.

Action Item #13: *Maintenance of Wiggins Flood Levees – Town of Wiggins.*

Issue/Background: Levees were built to prevent water from coming into the Town of Wiggins. The Town of Wiggins is responsible for the maintenance of the levee, and continued maintenance is needed. This action would result in a change to the 100-year floodplain map.

Other Alternatives:

Responsible Office: Morgan County OEM, Town of Wiggins

Priority (High, Medium, Low): High

Cost Estimate: Minimal

2014 Update: Ongoing activity.

Action Item #14: *Development and Implementation of Source Water Protection Plan – Quality Water District.*

Issue/Background: The Morgan County Quality Water District values a clean, reliable, high quality drinking water supply and decided to work collaboratively with area stakeholders to develop a Source Water Protection Plan to protect their water sources: the Hay Gulch, San Arroyo Creek, and Beaver Creek alluvial aquifers. During the months of March 2009 to October 2009, six stakeholder meetings were held in Fort Morgan, Colorado to encourage local public participation. The planning process attracted interest and participation from 24 people including local citizens, water operators, government, industry, and agency representatives. To develop their management approach, the Planning Team focused on the following issues of concern within the Source Water Protection Area: agricultural practices, oil and gas development and operations, septic systems, transportation on roads, land uses, private water wells, residential practices, underground water storage, Clean Harbors hazardous waste disposal site, and Prairie Ponds recharge area. Several Source Water Protection Best Management Practices have been identified. One of the priority issues is aquifer recharge, which helps mitigate drought. This project encompasses the development of the plan and implementation of those recommended practices regarding aquifer recharge.

Other Alternatives: No action

Responsible Office: Quality Water District and SWPP planning steering committee in conjunction with Morgan County Planning, Emergency Management, Town of Log Lane Village, and City of Brush Administration.

Priority (High, Medium, Low): Medium

Cost Estimate: Minimal- Plan is complete; Aquifer recharge BMP's include communication and information sharing activities.

2014 Update: Complete.

Action Item #15: *Encourage the State/NFIP to map the Town of Hillrose's flood hazards.*

Issue Statement: The Town of Hillrose has never been mapped by the NFIP. HAZUS flood modeling in this plan indicates that flood hazards exist, with Hillrose as the third most at-risk community in the County. HAZUS modeling also indicates a fire station potentially at risk to flooding. The community was also impacted by floods in 1997. More refined flood hazard mapping would enable the Town to plan wisely and administer floodplain development.

Implementation Manager and strategy: Hillrose administration should contact the Colorado Water Conservation Board to indicate interest in being mapped for the NFIP.

Priority: Moderate

Cost Estimate: Moderate

2014 Update: Project not complete.