Gene A. Meisner
Commissioner District One

Rocky L. Samber, Chairman
Commissioner District Two

David G. Donaldson
Commissioner District Three

Office Phone
970-522-0888
FAX 970-522-4018
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Web: www.colorado.gov/logan
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OFFICE OF THE BOARD
LOGAN COUNTY COMMISSIONERS

315 MAIN STREET SUITE 2
STERLING, COLORADO 80751

AGENDA
Logan County Board of Commissioners
Logan County Courthouse, 315 Main Street, Sterling, Colorado
Tuesday, June 30, 2015 - 9:00 a.m.

Call to Order
Pledge of Allegiance
Revisions/Corrections to Agenda
Consent Agenda

Approval of the Minutes of the June 23, 2015 meeting.

Unfinished Business

Consideration of the award of the proposal for the 2015 Overlay Program.

New Business

Consideration of the approval of Resolution 2015-18 adopting the Logan County Multi-hazard Mitigation Plan.

Consideration of the approval of an agreement between Logan County and Highline Electric Association for use of the county right of way for a 4" conduit for electric line under Logan County Road 97/Phillips County Road 1.

Other Business
Miscellaneous Business/Announcements

County Offices will be closed Friday, July 3 due to the Independence Day holiday falling on Saturday, July 4. Road and Bridge Offices will be closed Thursday, July 2 to give the department the same paid holiday as other employees.

The next regular business meeting will be scheduled for Tuesday, July 7, 2015, at 9:00 a.m. at the Logan County Courthouse.

Executive Session as Needed
Adjournment

June 23, 2015

The Logan County Board of Commissioners met in regular session with the following members present:

Rocky L. Samber	Chairman
David G. Donaldson	Commissioner
Gene A. Meisner	Commissioner
Alan Samber	Logan County Attorney
Marie Granillo	Deputy Clerk
Callie Jones	Journal Advocate
Forrest Hershberger	South Platte Sentinel

Chairman Samber called the meeting to order at 9:00 a.m. The meeting was in the small conference room. There was no flag therefore no Pledge of Allegiance was made.

Chairman Samber asked if there were any revisions or corrections for today's agenda. None were indicated.

The Board continued with the Consent Agenda items:

- Approval of the minutes of the June 9, and June 16, 2015 meetings.
- Approval of an application for renewal of a 3.2 Beer License on behalf of Lu's Buffalo Stop.

Commissioner Meisner moved to approve the Consent Agenda for the June 23, 2015 business meeting. Commissioner Donaldson seconded and the motion carried 3-0.

Chairman Samber continued with Unfinished Business:

Commissioner Donaldson made a motion to award the bid for the mailing machine to Complete Mailing Solutions for a Neopost brand machine in the amount of $8,827.00. Commissioner Meisner seconded and the motion carried 3-0.

Chairman Samber continued with New Business:
The Board opened proposals for the 2015 Overlay Program.

- McAtee $84.30 per ton

Commissioner Meisner moved to accept the 2015 Overlay Program bid and refer to Logan County Road and Bridge Department for their review and recommendation back to the Board of the Logan County Commissioners. Commissioner Donaldson seconded and the motion carried 3-0.

Commissioner Donaldson made a motion to approve the Intergovernmental Agreement between Logan County, Colorado, acting by and through the Logan County Clerk and Recorder and the Haxtun School District RE-2J for administration of their respective duties concerning the conduct of the Coordinated Election to be held November 3, 2015 and authorize the chairman to sign. Commissioner Meisner seconded and the motion carried 3-0.

Commissioner Meisner moved to approve the Fourth Amendment to Medical Supply Restocking Agreement between Logan County Ambulance and Banner Health d/b/a Sterling Regional MedCenter and authorize the chairman to sign. Commissioner Donaldson seconded and the motion carried 3-0.

Commissioner Donaldson made a motion to approve the Memorandum of Understanding for Mutual Aid between the Logan County Office of Emergency Management and the Colorado Department of Corrections for the purpose of facilitating emergency response cooperation between their respective agencies. Commissioner Meisner seconded and the motion carried 3-0.

The Board moved on to Miscellaneous Business/Announcements:

The next regular business meeting is scheduled for Tuesday, June 30, 2015 at 9 a.m. in the hearing chambers at the Logan County Courthouse.

There being no further business to come before the Board the meeting was adjourned at 9:12 a.m.

Submitted by: Marie T. Granillo
Logan County Clerk & Recorder

Approved: June 30, 2015

BOARD OF COUNTY COMMISSIONERS
LOGAN COUNTY, COLORADO

(seal)

By: _____
Rocky L. Samber, Chairman

Attest:

_____
Logan County Clerk & Recorder

Logan County 2015 Overlay Program
Specifications

The Logan County Board of Commissioners is accepting sealed proposals for the 2015 Overlay Program. All proposers shall submit proposals in accordance with the following specifications:

1. It shall be the responsibility of the proposer to furnish all the necessary equipment, materials, and personnel to complete the project in an efficient, thorough and workman-like manner.

2. Overlay Requirements:

   a. The new asphalt mat shall be laid in two lifts. The first lift shall be a leveling course with a compacted thickness of not less than 1 ¼ inches. The finish lift shall have a compacted thickness of one inch.

   b. The asphalt aggregates shall meet the Colorado Department of Highways Standard Specifications for Road and Bridge Construction, Grade F, with mineral filler or lime slurry.

   c. 3/4 inch screened aggregate shall be utilized by successful proposer.

   d. The new asphalt mat shall have a width of the existing road.

   e. The tack coat shall be CSS.1-H and must be applied not more than 1 hour before asphalt paving is to be laid.

   f. The amount to be overlaid will depend on the price of the final contract. Actual roads to be overlaid will need final approval of road and bridge foreman if price exceeds budgeted dollars for all roads proposed for overlay for 2015.

   g. All asphalt products should meet specifications of Grade F.

3. All Proposers shall include a bid bond with their proposal. The bid bond shall be in the amount of 5% of the proposal submitted.

4. The successful proposer shall furnish a performance bond and a payment bond prior to the commencement of any work on the project. Said bonds shall be for 100% of the total proposal.

5. Logan County shall be responsible for furnishing all equipment, materials and personnel to complete any base course preparations in an efficient, thorough and workman-like manner.

6. Prior to the commencement of any work on the project, the successful proposer shall furnish evidence of insurance in the form of an insurance certificate specifying the following coverages and corresponding limits of liability of not less than:

   a. General Liability $350,000.00 (per person) $990,000.00 (per occurrence).

   b. Automobile $350,000.00 (per person) $990,000.00 (per occurrence).

c. Workers Compensation Insurance in accordance with Colorado law.

7. The project shall be fully completed by September 30, 2015.

8. All contractors are required to submit proposals on a **cost per ton basis.**

9. The hot bituminous pavement will be paid for at the unit price proposed per ton. The unit price proposed per ton shall include all costs for the laying and compacting of said pavement. Payment will be rendered to the successful proposer on the basis of scale tickets furnished to Logan County from an approved scale (the weighing cost shall be included in the proposal submitted).

10. All requests for payment by the successful proposer shall be received by the Logan County Road and Bridge Department. Ten (10%) percent of all approved pay requests shall be withheld by Logan County until the final acceptance of the project. Final acceptance of the project will be contingent upon the approval of the Board of County Commissioners.

11. Any work above and beyond the scope of these specifications shall be approved in writing, by the Board of County Commissioners and the successful proposer prior to the commencement of any additional work.

12. **All proposals shall be submitted in a sealed envelope marked "Overlay Proposal" by 5:00 p.m., Monday, June 22, 2015 to the Logan County Commissioners Office, 315 Main Street, Sterling, CO 80751.**

13. Proposals will be **opened at 9:00 a.m. on Tuesday, June 23, 2015** at the Logan County Courthouse, 315 Main Street, Sterling.

14. The Logan County Board of Commissioners reserves the right to reject any or all proposals and to accept the proposal which is deemed to be in the best interest of Logan County.

15. The 2015 Overlay Project will be awarded by contract which is attached to these specifications. All terms and instructions included in these specifications shall become part of said contract. NEW: In the interest of time, please complete and sign the contract and include with your proposal.

16. In preparing proposals, contractors are to refer to these specifications and contract, and attachments (if any) to these specifications.

17. For further information regarding this project, please contact the Chad Wright at the Logan County Road and Bridge Department at 522-3426 or 520-6370.

18. The Contractor is responsible for all signage in accordance with the Manual on Uniform Traffic Control Devices. Flag persons as necessary will also be the responsibility of the contractor.

19. The County may periodically have a specimen tested to ensure compliance with the specifications. A minimum density of 93% will be required. The County will be responsible for such testing to ensure that the Grade F and minimum density requirements are met.

20. To be considered, all proposers must file a current copy of the Colorado Department of Highways qualified bidder letter.

21. If anticipated funds become available, additional miles may be added to the contract.

22. Temporary striping will be provided by the Contractor. Cost for the striping shall be included in the proposal of the contractor. The temporary striping will be in place prior to the end of the first working day after the asphalt mat has been completed.

Proposal Price Using Grading F Unit Price Per Ton: 84.30

Company Name: McAtee Construction Company

By: Dave McAtee

Title: Construction Manager

Address: 220 Edward Avenue

City/State/Zip: Sterling CO 80751

Phone: 970-522-3647

Fax: 970-522-9725

E-mail: dgebhart@simon contractors.com

Attest: Pam Clayman

RESOLUTION

NO. 2015-18

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF LOGAN COUNTY, COLORADO, ADOPTING THE LOGAN COUNTY MULTI-HAZARD MITIGATION PLAN.

WHEREAS, Logan County recognizes the threats that natural hazards pose to the citizens and property of Logan County; and

WHEREAS, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

WHEREAS, the Logan County Board of County Commissioners, with the assistance of Logan County Emergency Manager, has gathered information and prepared the Logan County Multi-Hazard Mitigation Plan, which is in accord with the requirements of the Federal Emergency Management Agency and the federal requirements for local hazard mitigations plans set forth in Title 44 Code of Federal Regulations 201.6; and

WHEREAS, Logan County, as a local unit of government, has afforded the citizens an opportunity to comment and provide input for the Plan and the actions required by the Plan; and

WHEREAS, the Plan will be reviewed and updated no less than every five years.

NOW THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Logan County, Colorado, that the Logan County Multi-Hazard Mitigation Plan, in the form attached hereto, is hereby adopted as this jurisdiction's Multi-Hazard Mitigation Plan, and the hazard mitigation actions described in the Plan shall be executed and implemented in the manner described therein.

ADOPTED this 30th day of June, 2015.

THE BOARD OF COUNTY COMMISSIONERS
OF LOGAN COUNTY, COLORADO

_____(Aye) (Nay)
Rocky L. Samber, Chairman

_____(Aye) (Nay)
Gene A. Meisner

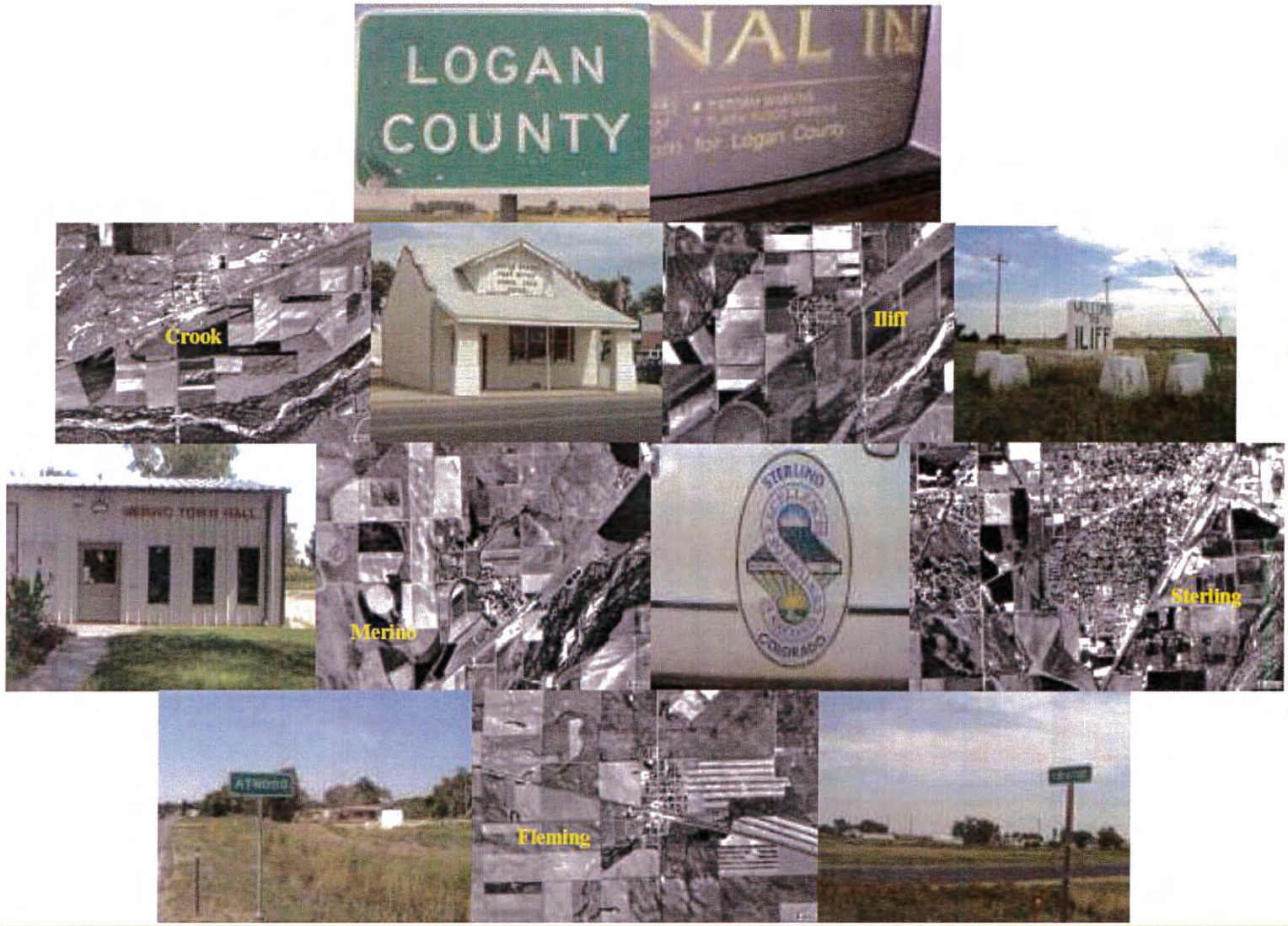
_____(Aye) (Nay)
David G. Donaldson

ATTEST:

I, Pamela M. Bacon, County Clerk and Recorder in and for the County of Logan, State of Colorado, do hereby certify that the foregoing Resolution was duly adopted by the Board of County Commissioners of the County of Logan and State of Colorado, in regular session on the 30th day of June, 2015.

_____
County Clerk and Recorder

LOGAN COUNTY PLANNING ELEMENT



2014 Logan County Planning Subcommittee

Participating Jurisdictions	Stakeholders
Logan County Sheriff's Department Road & Bridge Emergency Management City of Sterling Sterling Police Department Sterling Fire / EMS Sterling Public Works Sterling Parks, Library and Recreation Logan County Water Conservancy District	American Red Cross Colorado Office of Emergency Management Colorado State Forest Service Northeast Colorado Health Department Sterling Regional Medical Center Town of Peetz Town of Crook Crook Fire Department Town of Fleming Town of Iliff Town of Merino Sterling Rural Fire Protection District Crook Fire Protection District Buffalo School District RE-1 Valley School District RE-4J Merino Schools RE-5 Plateau School District Fleming School District Iliff Platte Valley Drainage District Farmer's Pawnee Canal Company Spring Dale Ditch Company Sterling Irrigation Company Bravo Ditch Company Highline Electric Association North Sterling and Prewitt Reservoirs

County Profile

Logan County is located in the northern region of the State in the Great Plains. The land area of Logan County is 1,845 square miles. According to the 2000 U.S. Census, the population for Logan County was 20,504. According to the 2010 U.S. Census, the County's population has grown to 22,709. The estimated population density for the County is 12.3 people per square mile. Logan County grew at

a rate of 9.7% between 04/01/2000 and07/01/2010. There are 8,981 housing units in the County, for an average housing density of 4.86 housing units per square miles. [1]

As of the 2010 Census, there are 12,924 males and 9,785 females in Logan County. The Logan County population by age is 4,542 under the age of 18 and 18,167 over the age of 18, with 1,670 age 20-24, 3,266 age 25-34, 4,585 age 35-49, 4,444 age 50-64 and 3,321 age 65 and older.

The average household size is 2.33, and the average family size is 2.90. 84.0% of the population over the age of 25 holds at least a high school degree and 27.0% hold a bachelor's level degree or higher. 16.4% of the population (over age 5) holds disability status. There are no measurable demographics to determine the population (over age 5) that speaks a language other than English in the home. 4.3% of all families live below the poverty level, and 8.7% of individuals live below poverty level. The County is home to the major community of Sterling, while the remainder is predominantly agricultural. The 2012 Census of Agriculture reports 891 farms, with 1,099,217 acres of total farmland. This accounts for 93% of the total land area in the County. The average farm size is 1,234 acres.

Hazard Identification and Summary

Logan 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 Logan County. This information is presented in Table 1.

Table 1. Logan County Hazard Summary

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Biological Hazards				
o Pestilence	Extensive	Occasional	Limited	Medium
o Plague*	Limited	Likely	Limited	Medium
Blizzards & Severe Winter Storms	Extensive	Likely	Critical	High

[1] U.S. Census Bureau: 2010 State and County Quick Facts, as documented on the Logan County Emergency Management Webpage at http://readynortheast.org/Logan.html

Dam Failures & Levee Failures	Limited	Likely	Limited	Medium
Drought	Extensive	Likely	Critical	High
Earthquake	Limited	Occasional	Limited	Low
Flooding	Significant	Likely	Critical	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

Logan County History of Recorded Natural Hazard Losses

Flooding, winter storms and drought are the most frequent hazards experienced in the County. The September 2013 flooding on the S. Platte River caused extensive damage to infrastructure and property in the County. In 1997, Sterling and Atwood were struck by a flood along Pawnee Creek that resulted in over $19 million dollars in damages and a Federal Disaster Declaration. A summary of the past hazard events are captured in Table 2 and in the text that follows.

Table 2. Historic Hazard Events

Date	Event	Location	Damages	Other Info	Data Source
1844	Flood			"Bluff to Bluff"	USACE
1864	3 Floods			May & June	USACE
May, 1876	Flood				USACE
June 2, 1894	Flood	S. Platte		"Two Miles Wide"	USACE
1921	Flood	S. Platte			USACE
1935	Flood	Crook, Pawnee Cr.		Up to UPRR grade	USACE
Sept. 1938	Flood	Tributaries to S. Platte			USACE
May 1942	Flood	S. Platte			USACE
May 1949	Flood	S. Platte			USACE
12/31/1949	Blizzard			2-3 day storm	Planning Team
May 31, 1965	Flood	S. Platte, Pawnee Cr.			USACE
Aug. 13, 1968	Flood			11" rain	NCDC
May 8, 1969	Flood	S. Platte		Fed. Dec. 15 cty	USACE
April, 1973	Flood	S. Platte			USACE
3/17.1977	Blizzard		HEA lost 250 poles, ice damage	Power out 2 weeks	
1980	Grasshoppers			State Dec	CO-OEM
1980	Flood			State Dec	CWCB/CO-OEM
1981	Grasshoppers			State Dec	CO-OEM
June, 1995	Flood		$261,200	Road damage	CWCB

Date	Event	Location	Damages	Other Info	Data Source
June 6, 1997 - July, 1997	Flood (Fed. # 1186)	Atwood, Pawnee Creek	1,300 hms/St. @ $8.931M 100 hms/At @ $872.5K 200 Bus/St @ $1.374M Ag. Damage @ $6.850M Roads $1M, RR - $100K	Total of $19.090M 13 homes destroyed $604.6K TH $210K IFG (75%) $3.215M berm/levees	FEMA CWCB CO-OEM Planning Team
1998	Hail/Tornado	Crook			NCDC
2000	Hail				NCDC
2000	Drought (USDA Dec)			Contiguous County	USDA
April 2001	Winter Storm Fed #1374		HEA lost 260 poles, ice damage = $390,660	REA's damaged	REA
July 13-14, 2001	Severe Weather				Planning Team
2002	Drought		Over $1B in NE Colorado		Planning Team/ FSA
6/9/2004	Tornado	Sterling	$1.9M	The total economic impact to Sterling which also involved cleanup and repair was estimated to be between $5 million and $7 million.	NCDC
12/20/2004	T-Storm/High Wind	Entire County	$400K	60 mph winds	NCDC
4/19/2005	Hail	Padroni	N/A	2.75" hail	NCDC
7/16/2008	Flood	Fleming	$15K	Heavy rain damaged corn crops and washed out several county roads; spotters measured up to 4 inches of rainfall.	NCDC
8/10/2011	T-Storm/High Wind/Hail	Entire County (most damages north and west of Sterling)	Moderate to heavy hail damage to 100 homes	Heavy rain, 60 mph winds and golf-ball size hail	Sterling-Logan County OEM
9/11/2013	Flood	Countywide along S. Platte River	Damage in excess of $1 million to homes, bridges, farmland, levees and ditches	Presidential Disaster Declaration for Public Assistance	FEMA/Sterling-Logan County OEM

Hazard Events, 2009-2013

Wildfires:
Between **January 1st 2009 and July 1st 2013** there were a total of nearly 400 wildland fire incidents in Logan County. Out of those incidents there were 28 that required three or more Fire Departments to bring the fires under control. These 28 fires damaged 31,937 acres.

Severe Thunderstorms:
All of Logan County is under the threat of severe thunderstorms in the spring and summer. These storms can contain heavy intense rainfall, large damaging hail, lightning, strong winds and tornadoes. On **August 10, 2011,** an intense thunderstorm passed through Logan County. The storm produced winds over 60 mph, heavy rain and sustained waves of golf ball sized hail. While most of Logan County was affected by the storm, the brunt of the severe storm passed just north and west of Sterling. Over 100 homes sustained moderate to heavy damage from the hail. One subdivision 2 ½ miles west of Sterling sustained over 150 broken windows that resulted in water damage from the rain that followed. The intense rainfall caused street flooding in and around Sterling. Insured losses in Logan County were in the millions.

South Platte River Flooding:
The South Platte River is susceptible to high flows and flooding during the spring snowpack runoff. The river peaked above 9' at the Balzac gauge three times in the spring season between 2009 and 2014, causing the river to leave its banks in low lying areas and cause minor damage to farmland and roadways within the basin. On **September 11, 2013,** counties along the northern Front Range experienced very heavy and sustained rainfall. Over the next 48 hours reports of extensive flood damage and loss of life were reported in Boulder, Larimer and Weld counties. It was apparent that the flood waters were going to affect Logan County as well.

Shortly after 5:00am on Sunday September 15 the river gauge at the Balzac site west of Logan County was at flood stage. As the crest of the floodwaters moved through Logan County over 900 residents in the river basin were evacuated. Long term sheltering was set up and the Emergency Operations Center was activated. As Sunday evening approached the river was well out of its banks and approaching record levels. Many roadways and bridges sustained damage and were closed. Responders and workers fought to keep the flood waters within the basin and out of the cities and towns along the river. At its crest, the river threatened to breach levees and flow over the railroad tracks. Several canals and ditches were overwhelmed by the floodwaters and also were threatening towns along the river. Crews were able to contain the floodwaters for the most part to within the 100 year flood basin.

As the flood crest began to recede damage was assessed across Logan County. All bridges across the Platte River were damaged and caused road closures, effectively cutting the county in two. Damage to farmland and grass pastures in the basin was extensive. 107 households were damaged by the floodwater: 62-affected, 27- minor damage, 7- major damage and 11 – destroyed. There were no reports of injuries or loss of life to either citizens or responders.

Sterling-Logan County Emergency Operations Center at the height of local flood response efforts (September 2013)

A damaged levee overran a City of Sterling sewer facility and caused a No Flush Order for seven days. This order caused the closures of restaurants, motels and other businesses for the seven day duration, which caused considerable economic harm to the City and residents. The County was declared a disaster by the Governor and help arrived from many agencies including Federal, State, Non-Profits and volunteers. FEMA distributed $519,436.00 of assistance to Logan County residents and $622,863.11 of assistance to Logan County and Sterling governments to help rebuild.

Hazard History in Logan County from 1950-2014:

Dams:

- 3 Class I (High Hazard) Dam (N. Sterling-"Point of Rocks reservoir"),
- 0 Class II (Significant Hazard) Dams;
- Julesburg (Jumbo) Reservoir is on the eastern County border and is owned by Julesburg Irrigation.
- Known Failures: 0

Levees: *No official levees noted on FIRM maps.*

Drought Incidents: 6 (regional occurrence)

Dust Storm: 0

Earthquake: Risks are being reevaluated according to CGS. Some seismic activity has been recorded west in Weld County in 2014.

Extreme Temperatures:

- Highest Recorded Temperature in County: 110°F
- Lowest Recorded Temperature in County: -35°F

Floods and Flash Floods: 11

Hailstorms: 21

Landslide: Isolated areas of Suspected Moderate Risk (2008 State Hazard Mitigation Plan)

Lightning: Averages 8,500 strikes per year, 0 injuries and 1 death from 1980-2005

Severe Windstorms: 119

Severe Winter Weather: 17

Tornadoes: (F1 or greater) 25 (Any size) 79

Wildfires: Between **January 1st 2009 and July 1st 2013** there were a total of nearly 400 wildland fire incidents in Logan County. Out of those incidents there were 28 that required three or more Fire Departments to bring under control. These 28 fires damaged 31,937 acres.
NOTE: Grassfires are only a small percentage of the total number of calls leading to fire response.

Public Health: Significant public health incidents **01/01/2009 to 07/01/2014**

- West Nile: 11 cases, no fatalities.
- Rabies: 17 cases – animal only, no human cases. 15 skunk, 1 cat and 1 horse.
- Anthrax (Non-Weapon- natural) 60+ cattle affected. 20 humans recommended for prophylaxis.
- H1N1 Influenza: 2009 thru 2010, 6 persons hospitalized.

Logan County Vulnerability Assessment

The intent of this section is to assess Logan 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 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 Logan 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 3.

Total Values at Risk from Hazards: (2001 data—actual values): *Crook:* **115 buildings valued @ $3,361,948**

- ***Fleming:*** 68 buildings valued @ $2,234,019
- ***Iliff:*** $8.1M in assessed property
- ***Merino:*** $12.2M in assessed property
- ***Sterling:*** $661.4M in assessed property
- ***Unincorporated County:***

- $576.11M in Residential Property
- $111.31M in Commercial Property
- $ 15.66M in Industrial Property
- $ 98.21M in Agricultural Property
- $ 87.86M in Public Utilities

Table 3. Building Exposure

City	Population	Building Count	Building Exposure ($)	Building Content	Total Exposure
Crook	128	146	10,207,000	6,737,000	16,944,000
Fleming	426	384	25,038,000	15,547,000	40,585,000
Iliff	213	130	12,811,000	7,934,000	20,745,000
Merino	246	138	13,818,000	8,609,000	22,427,000
Peetz	227	142	13,316,000	8,638,000	21,954,000
Sterling	11,267	6,535	870,044,000	641,088,000	1,511,132,000
Logan County	7,997	4,437	424,525,000	275,889,000	700,414,000
Total	**20,504**	**11,912**	**1,369,759,000**	**964,442,000**	**2,334,201,000**

Source: HAZUS MH MR3

Critical Facilities and Infrastructure

An inventory of critical facilities in Logan County is provided below in 0. The table includes data from available statewide GIS resources (locations are illustrated in Figure 1) supplemented with information from the Logan County CPS.

Table 4. Critical Facilities Inventory

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
Essential Infrastructure				
Airports (paved)	1			
Communications Towers	4			
Correctional Facilities	2			

Facility Type	Number of Sites	Est. Replacement Value	Capacity or Enrollment	Additional Information
Electrical Generation/Distribution	2			
Media Outlets				
Natural Gas Facility	6			New large NG storage off C.R. 72
Public Safety Communications Centers	1			
Public Safety Facilities				
Police Stations	3			
EMS/Ambulance Stations	1			Merged with Sterling Fire Dept.
Fire Stations	5			
EOCs	2			Alternate EOC at NCHD
Town/City Halls	1			
Wastewater Treatment	1			
Water Utilities/Treatment	1			Water treatment plant for Sterling
Childcare Centers				
Schools	10			
Shelters				
Hospitals	1			
Nursing Homes/Assisted Living Centers	4			
Natural, Cultural and Historic Resources	1			Overland Trail Museum
Community Centers	1			Heritage Center
Historic Properties				
Hazardous Materials	3			
Extremely Hazardous Substances				
Hazardous Chemicals storage	23			SARA Tier II Reporting Facilities

Natural and Historic Assets

Historic Sites in Logan County:

Merino:

- Davis Barn, 13341 County Rd. 8 (wood-frame Round-Roof Barn)

Sterling:

- All Saints Episcopal Church
- German Congregational Zion Church
- First United Presbyterian Church
- Harris House, 102 Taylor St.
- I & M Building 223 Main St.
- Logan County Courthouse
- Luft House, 1429 Colo. Hwy 14
- Powell and Blair Stone Ranch (aka Spring Valley Ranch)
- St. Anthony's Roman Catholic Church, 329 3rd. St.
- Main Post Office, Federal Building & Courthouse, 3rd & Poplar
- Sterling Public Library, 210 S. 4th
- Union Pacific Railroad Depot 113 N. Front

Development Trends in Logan County:

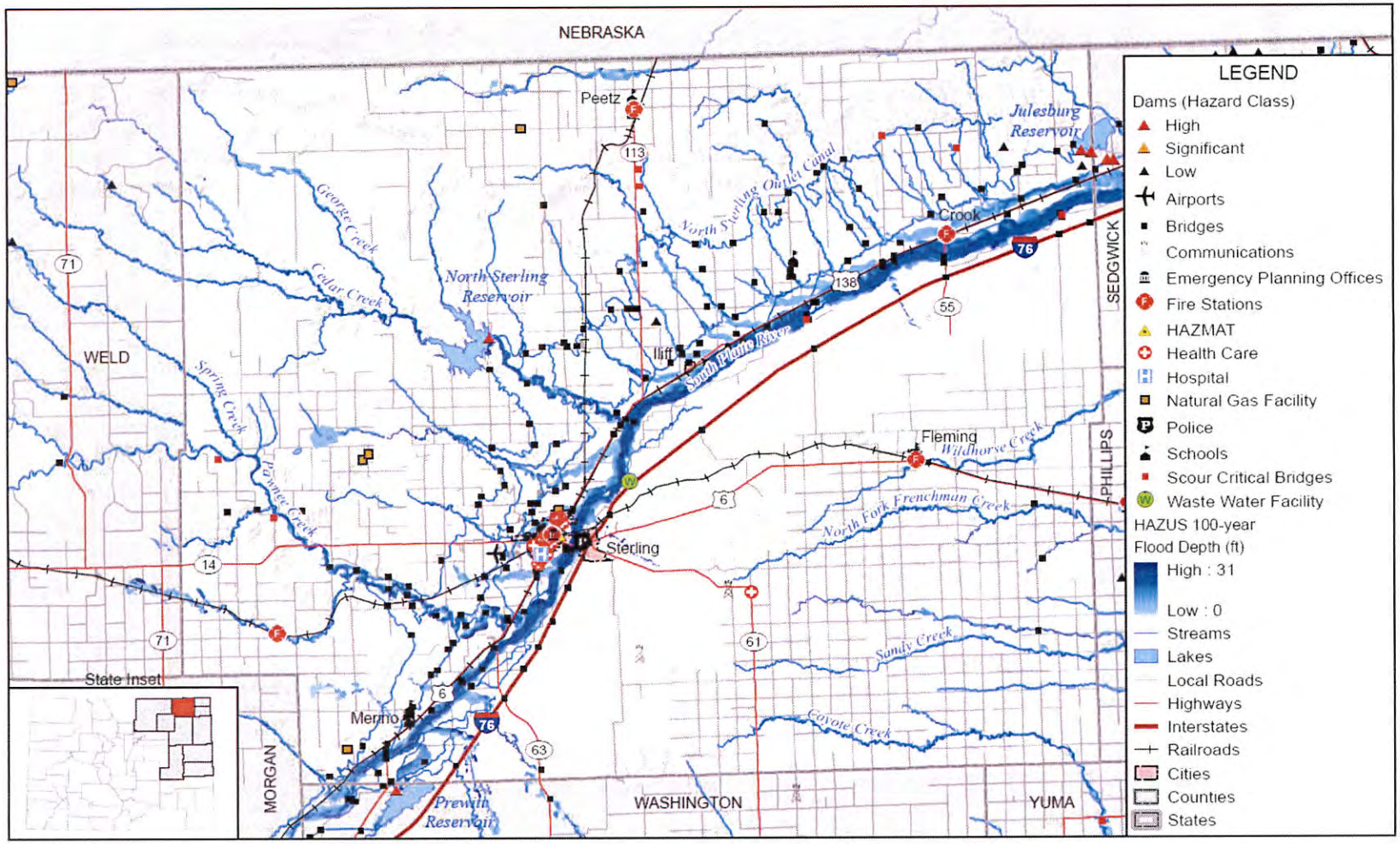
There is slow, steady growth to west of Sterling along Colo. Hwy 14.

The County population grew by 9.7 % between 2000 and 2010, indicating a steady population growth.

Flood Vulnerability Assessment

The best available flood data for Logan 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 2. Logan County HAZUS 100-year Floodplain and Critical Facilities Map



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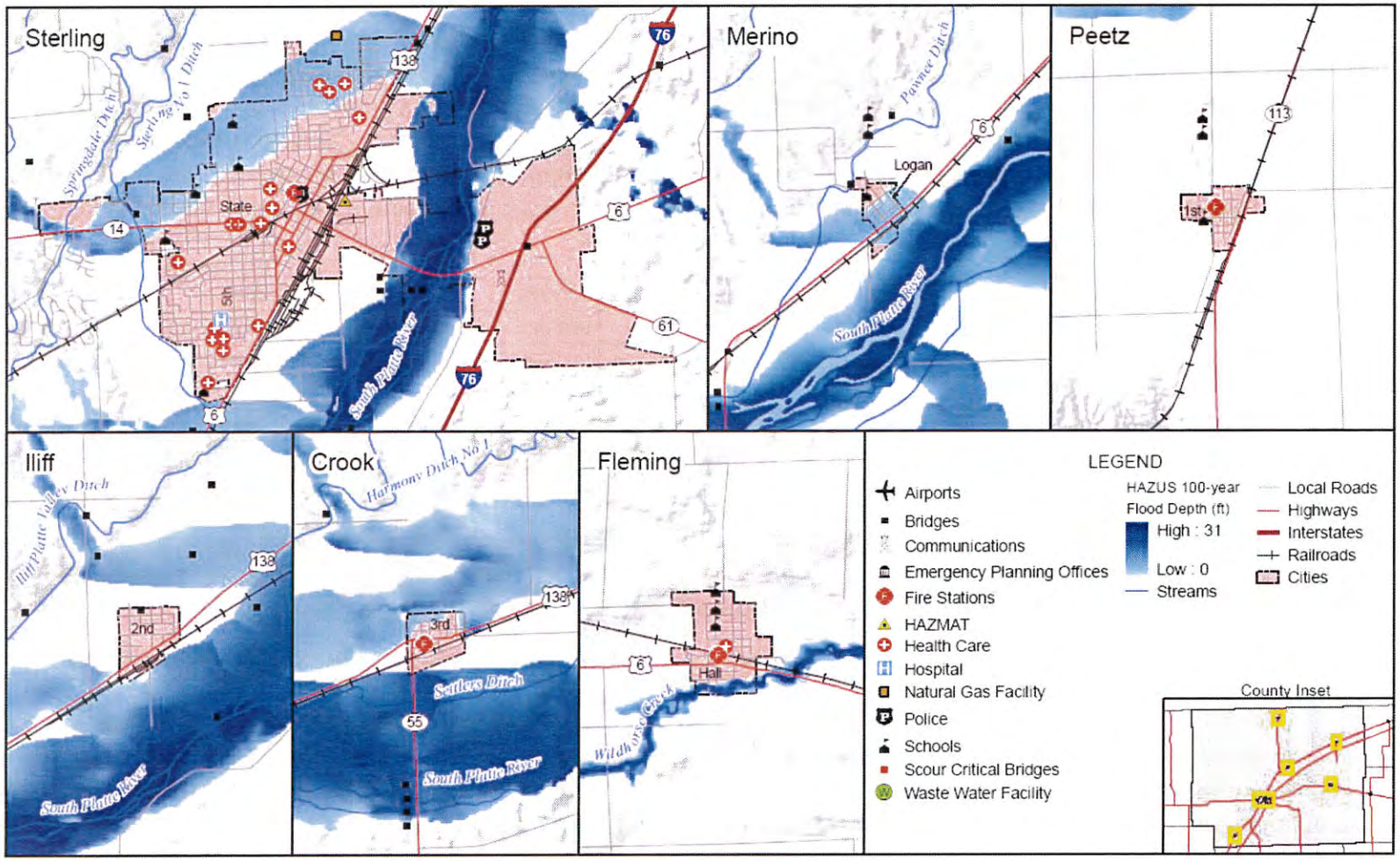
Map compiled 4/2009; intended for planning purposes only.
Data Source: State of Colorado, CDOT, CODWR, HAZUS-MH MR3

Figure 3. Logan County Cities HAZUS 100-year Floodplain and Critical Facilities Map



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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 $52 million in flood losses from a 100-year flood in the 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 Table 5. According to HAZUS-MH, the City of Sterling has the greatest flood risk with a damage potential exceeding $30M, followed by the unincorporated areas. The map in Figure 3 displays the distribution of the flood loss by Census Block across the County. According to the map in Figure 3 the majority of flood impacts in the unincorporated County are located on South Platte River which goes through the Cities of Crook, Iliff, Merino and Sterling. The HAZUS model does not account for levee protection that may exist. According to the current FEMA FIRMs there are not any levees in Logan County.

Table 5. Estimated Economic Losses from Flooding

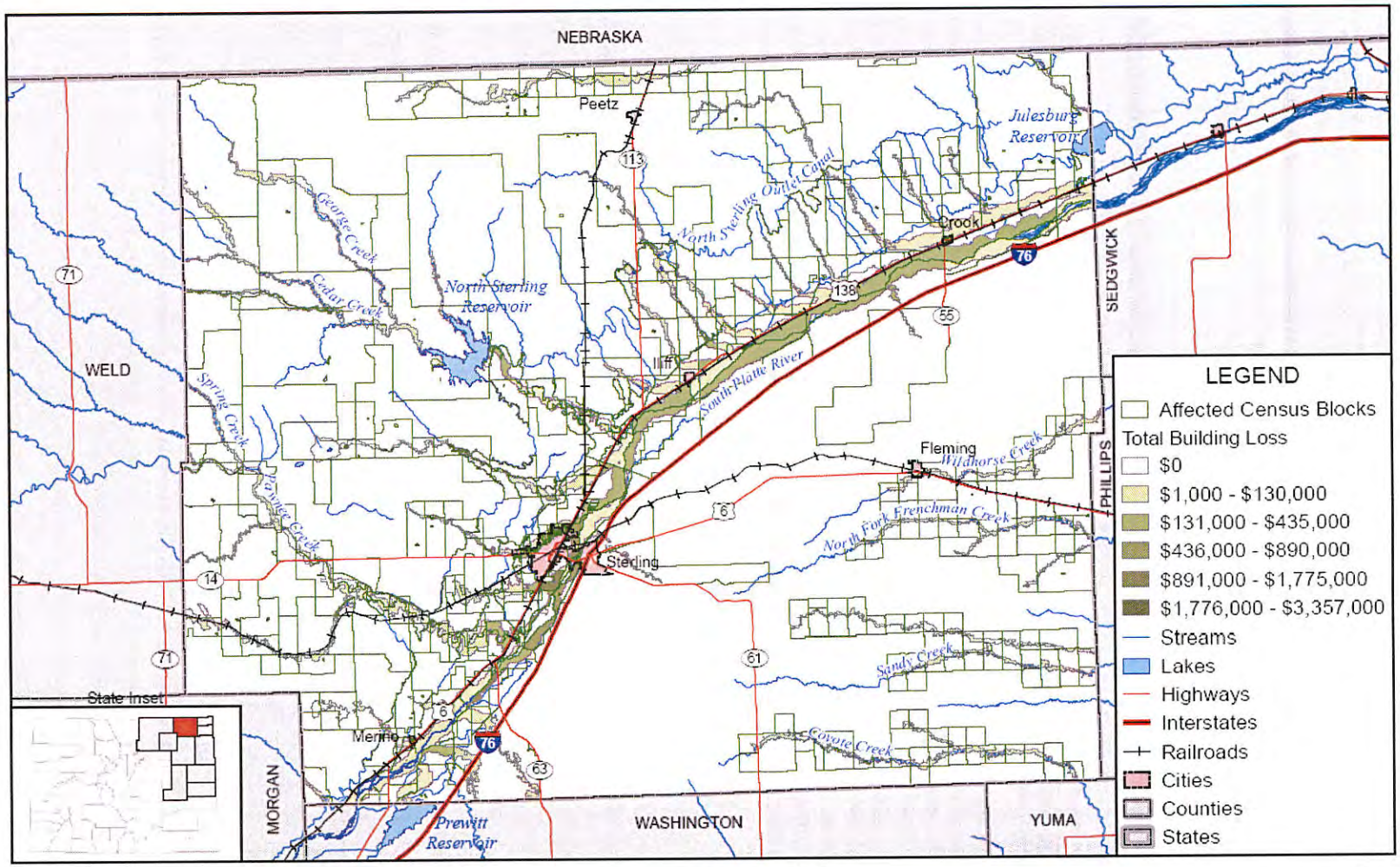
Jurisdiction	Cost Building Damage ($)	Cost Contents Damage ($)	Inventory Loss ($)	Relocation Loss ($)	Capital Related Loss ($)	Rental Income Loss ($)	Wage Loss ($)	Total Loss ($)	Percent of Total Loss	Loss Ratio
Crook	104,000	106,000	-	-	-	-	2,000	212,000	0.4%	1%
Fleming	381,000	258,000	4,000	1,000	-	-	-	644,000	1%	1.5%
Iliff	-	-	-	-	-	-	-	-	-	-
Merino	403,000	379,000	37,000	1,000	2,000	-	43,000	865,000	2%	2.9%
Peetz	-	-	-	-	-	-	-	-	-	-
Sterling	11,612,000	17,840,000	462,000	102,000	78,000	27,000	462,000	30,583,000	58%	1.3%
Unincorporated	9,557,000	10,544,000	439,000	18,000	18,000	9,000	77,000	20,662,000	39%	2.3%
Total	**22,057,000**	**29,127,000**	**942,000**	**122,000**	**98,000**	**36,000**	**584,000**	**52,966,000**	**100%**	**2%**

Source: HAZUS-MH MR3

The building damage loss ratio shown in Table 5 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 city with the highest building damage loss ratio is Merino. Merino has the highest loss ratio of 2.9% with a potential building damage loss of $403,000. Fleming has the second highest loss ratio of 1.5% with a potential building damage loss of $381,000. Sterling is next with a loss ratio of 1.3% and a potential building damage loss of $11,612,000. Last is Crook with a loss ratio of 1% and a potential building damage loss of $104,000.

When comparing the HAZUS model results with the current FEMA FIRMs, it was observed that HAZUS does not represent flooding for Pawnee Creek overflow in the City of Sterling. The reason these streams were not analyzed within the model is due to the fact that these streams have a drainage area smaller than 10 square miles, which was set as a parameter during the HAZUS procedure. If the model did account for Pawnee Creek Overflow there could be even more damage as it goes straight through the middle of town. Another town that the HAZUS model did not match the FIRM was Crook. The FIRM indicates that the whole town is inundated by the South Platte River's 100 year floodplain and HAZUS only indicates a small portion of flooding on the north and south city limits. For the town of Iliff, the FIRM shows more flooding in the southern portion of town and HAZUS shows little flooding at all. The other communities of Fleming and Merino could not be compared since there are not any effective flood maps for them. The unincorporated floodplains within the HAZUS model match up closely to the ones on the effective FIRMs.

Figure 4. Logan County Building Loss in the 100-year Floodplain



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Map compiled 5/2009; intended for planning purposes only.
Data Source: State of Colorado, CDOT, CODWR, HAZUS-MH MR3

Floodplain Population Information

The displaced population and shelter needs estimated by HAZUS are shown in Table 6.

Table 6. Population Displaced by Flooding

Jurisdiction	Displaced Population	Population Needing Shelter
Crook	27	2
Fleming	36	20
Iliff	-	-
Merino	131	19
Peetz	-	-
Sterling	2,670	2,319
Logan County	954	285
Total	**3,818**	**2,645**

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 Table 7 and shown on the maps in Figures 2 and 3.

Table 7. Critical Facilities in the Floodplain

Flooded Critical Facility	Name	Near City
Health Care	Adams Circle	Sterling
Health Care	Eastern Colorado Home Care	Sterling
Health Care	Devonshire Acres	Sterling
Natural Gas Facility	KN Energy Incorporated Springdale Compressors	Sterling
Schools	Caliche Elementary School	Iliff/Crook
Schools	Campbell Elementary School	Sterling
Schools	Sterling Middle School	Sterling
Schools	Sterling High School	Sterling

Logan 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 8 scour critical bridges in Logan County. They are all located on the major roads and highways that travel through Logan County. One scour critical bridge is located east of Crook on County Road 93 at the intersection of the South Platte River. Two are located north of Crook, one on County Road 75 at North Sterling Outlet Canal and the other on County Road 93 at the South Platte River. One is located between Crook and Iliff on County Road 67 on the South Platte River. Two are located south of Peetz on State Highway 113 at the intersections of Unnamed Tributaries to Lewis Creek.

Two are located west of Sterling, one is on County Road 7.4 on Pawnee Creek and the other is located on County Road 11.1 on an Unnamed Tributary to Pawnee Creek. The location of these bridges is shown in Figure 1, and described in detail in Table 8.

Table 8. Logan County Bridges Subject to Scour

Name	Road Type	Stream	Near City
County Road 68	Local Road	Duck Creek	Crook
County Road 75	Local Road	North Sterling Outlet Canal	Crook
County Road 7.4	Local Road	Pawnee Creek	Sterling
County Road 67	Rural Highway	South Platte River	Between Crook and Iliff
County Road 93	Rural Highway	South Platte River	Crook
State Highway 113	Rural Highway	Unnamed Tributary to Lewis Creek	Peetz
State Highway 113	Rural Highway	Unnamed Tributary to Lewis Creek	Peetz
County Road 11.1	Local Road	Unnamed Tributary to Pawnee Creek	Sterling

Table 9. NFIP Policies and Claims Information, 1978-2013

County	Policies	Total Coverage	Claims	Payments
Logan	355	$45,426,600	54	$199,629

Repetitive Loss Properties:

According to the FEMA NFIP Insurance report there are two repetitive loss properties in the unincorporated County, and two located in the City of Sterling.

Dam Failure Vulnerability Assessment

According to HAZUS MR3, there are 3 high hazard dams in Logan County. 0 indicates how dam failure risk varies among communities in Logan County. The locations of these dams are shown in Figure 1.

Table 10. Hazardous Dams in Logan County

Dam Name	County	Max Storage (acre ft)	Dam Hazard	Downstream Community	Miles to Community	Relative Downstream Impacts
Julesburg #1	Logan	38,600	High	Dorsey	-	Limited
Julesburg #1A	Logan	38,600	High	Dorsey	-	Limited
Point Of Rocks	Logan	113,600	High	Iliff	9	Critical

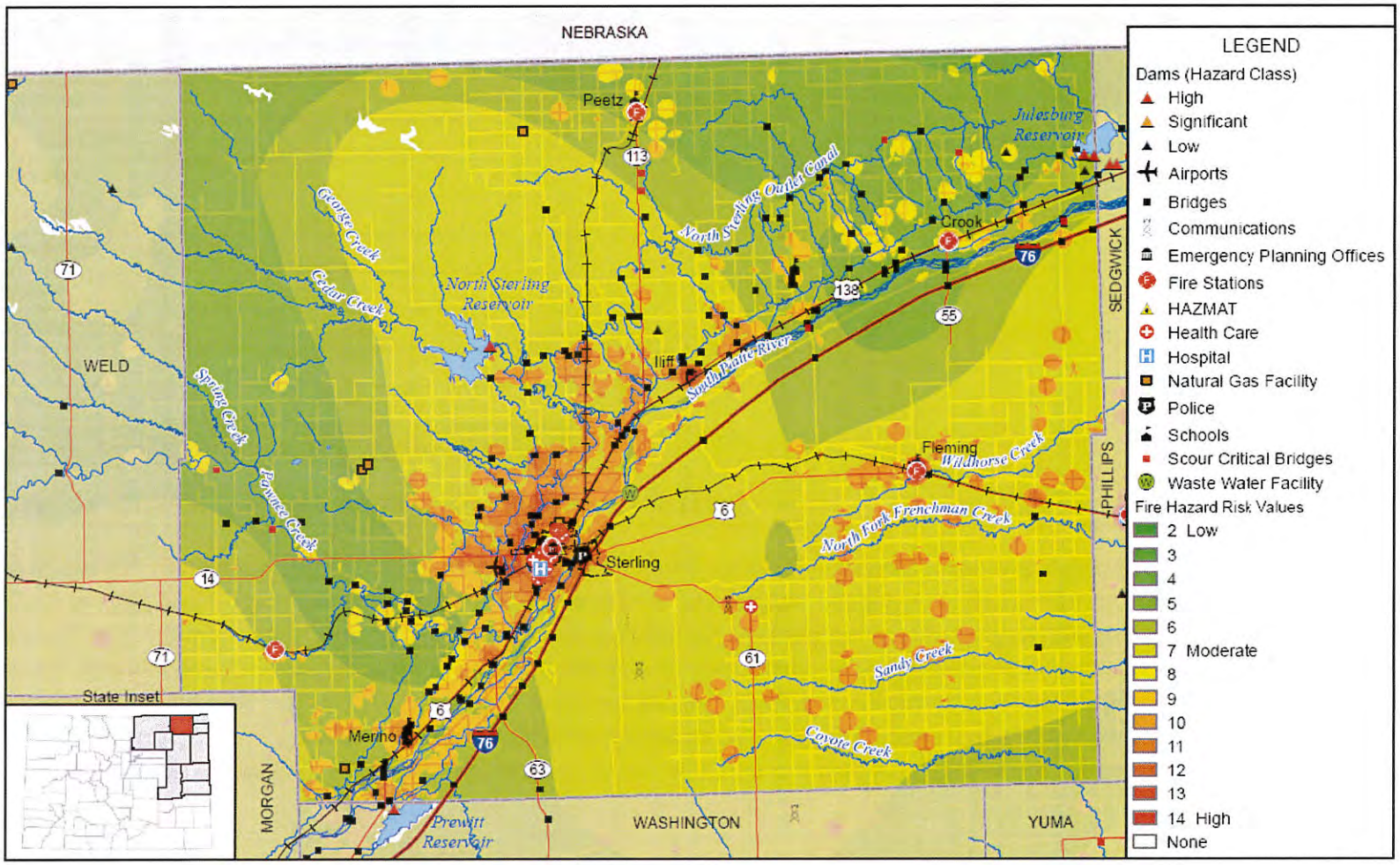
Source: HAZUS MR3

Wildfire Vulnerability Assessment

Logan County Wildland Urban Interface

The Wildland Urban Interface map in Figure 4 for Logan 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 Crook, Fleming, Iliff, Merino, Peetz and Sterling. Fleming and Iliff have the highest fire risk in the county with values between moderate and high with the higher values within the city limits. Crook, Merino, and Peetz have moderate risk values and the City of Sterling has a mixture of low to high fire values. Half of the city has a lower risk value where the majority of commercial and residential areas are located. The higher values are on the outskirts and surrounding unincorporated county.

Figure 5. Logan County Wildland Urban Interface



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Map compiled 4/2009; intended for planning purposes only.
Data Source: State of Colorado, CDOT, CODWR, CSFS,
Colorado Wildfire Risk Assessment 5/16/2002

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 11. The following narrative describes each community and potentially at risk critical facilities.

Logan County has the second highest number of facilities in the region in a moderate to high fire hazard with 216. Crook has one fire station in the fire hazard. Fleming has three facilities in the fire hazard: one fire station, one health care and two schools. Iliff has one bridge in the fire hazard. Merino has one school in the fire hazard. Peetz has two facilities in the fire hazard: one fire station and one school. Sterling has forty five facilities in the moderate to high fire hazard: seven bridges, one communication tower, one emergency planning office, one HAZMAT facility, twenty three health care, one hospital, three police stations and five schools. The unincorporated county has 162 critical facilities in the fire hazard: one airport, 144 bridges, one scour critical bridge, three communication towers, two dams, one fire station, one health care, three natural gas facilities, six schools and one waste water facility.

Table 11. Critical Facilities Subject to Fire Hazard (by type)

Facility Type	Facility Count
Airports	1
Bridges	151
Communications	4
Dams	2
Emergency Planning Offices	1
Fire Stations	5
HAZMAT	3
Health Care	25
Hospital	1
Natural Gas Facility	3
Police	3
Schools	15

Facility Type	Facility Count
Scour Critical Bridges	1
Waste Water Facility	1
Total	**216**

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 Flood 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 Logan County that show economic loss are corn, corn silage and wheat. Corn's total loss is $29,188,429, corn silage's total loss is $72,039,739 and wheat's total loss is $21,935,514. The total loss of all of these products is $123,163,681. More detail is given in Table 12.

Table 12. Logan County Direct Economic Loss for Agriculture Products

Agriculture Product	Crop Loss Day 0 ($)	Crop Loss Day 3 ($)	Crop Loss Day 7 ($)	Crop Loss Day 14 ($)	Total Loss ($)
Corn	0	7,960,481	10,613,974	10,613,974	29,188,429
Corn Silage	0	19,647,202	26,196,269	26,196,269	72,039,739
Wheat	0	5,982,413	7,976,550	7,976,550	21,935,514
Total	0	33,590,095	44,786,793	44,786,793	123,163,681

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 $1.6 million in the County. More details are provided in Table 13 below.

Table 13. Logan County Premium and Loss Data for Federal Crop Insurance from 1980 through 2013

Year	Liability	Total Premium	Federal Premium Subsidy	Farmer Paid Premium	Amount Paid Claims
LOGAN COUNTY					
2008	$52,596,223	$8,524,403	$4,937,994	$3,568,409	$4,527,479
2009	$51,361,322	$9,357,822	$5,479,460	$3,878,362	$3,839,265
2010	$44,534,682	$6,841,816	$4,042,983	$2,798,833	$381,116
2011	$67,299,151	$9,119,644	$5,436,395	$3,683,249	$2,925,426
2012	$71,132,219	$9,108,916	$5,427,727	$3,681,189	$8,173,377
2013	$72,147,059	$9,296,632	$5,527,425	$3,769,207	$6,553,968
Total	$359,070,656	$52,249,233	$30,851,984	$21,397,249	$26,400,631

Source: Federal Crop Insurance Services

Logan 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 14. Refer to the Introduction to the County Elements for an explanation of the capability assessment matrix.

Table 14. Regulatory Mitigation Capabilities

	LOGAN	Crook	Fleming	Iliff	Merino	Sterling
Comp Plan	Y	N	N	N	N	Y
Land Use Plan	Y	N	N	N	Y	Y

	LOGAN	Crook	Fleming	Iliff	Merino	Sterling
Subdivision Ord	Y	N	N	N	Y	Y
Zoning Ord	Y	N	N	N	Y	Y
NFIP/FPM Ord	Y	Y	N	Y	N	Y
- Map Date	9/89 (FIRM)	2/86(M) – FIRM	11/74-NSFHA	8/87 - FIRM	Not Mapped	09-89 - FIRM
- Sub.Damage?	N	N	N	N	N/A	N
- Administrator?	Y	N	N	N	N/A	Y
- # of FP Bldgs?	1,660	0	0	0	N/A	1,660
- # of RL's?	0	0	0	0	N/A	0
CRS Rating	N/A	N/A	N/A	N/A	N/A	N/A
Stormwater Program	N	N	N	N	N	N
Building Code	Y, 2006	N	N	N	N	Y, 2006
Building Official.	Y	N	N	N	N	Y
- Inspections?	Y	N	N	N	Y	Y
BCEGS Rating	Y-9	N	N	N	N	Y-6
LEOP	Y					Y
HM Plan	Y	C	C	C	C	C
Warning	Y	Y	Y	Y	Y	Y
Storm Ready?	Y	C	C	C	C	C
Weather Radio?	Y	C	C	C	C	C
Sirens?	Y	Y	Y	Y	Y	Y
Emergency Warning Notification?	Y - Cable Override System	C	C	C	C	C
Other?	County-wide R911 phone systems - cell phones and VOIP.	C	C	C	C	C
GIS System	Y	C	C	C	C	C
Structural Projects	Y	N	N	N	Y	N
Property Protection	Y	N	N	N	N	N

	LOGAN	Crook	Fleming	Iliff	Merino	Sterling
Crit.Fac.Protection	Y	N	N	N	N	Y
Natural Res. Inv.	N	N	N	N	N	N
Cultural Res. Inv.	N	N	N	N	N	N
Erosion Control	N	N	N	N	N	N
Sediment Control	N	N	N	N	N	Y
Pub. Info Prgrm	Website	C	C	C	C	C
Env. Ed Prgrm	N	N	N	N	N	N

Additional Existing Mitigation Projects and Capabilities

Sterling Irrigation Company

- February 1998; Watershed Protection constructed at main diversion at a cost of $65,247
- March 1999; Riprap rollover dam at bladder gates constructed at Pawnee Creek diversion at a cost of $32,481
- April 2000, Installed 100' of bladder gates along with 2 radial gates at a cost of $360,317

Company also previously has installed the following:

- Pawnee Cr. Diversion gate
- Pawnee Cr. Radial gate
- Headwater measuring weir
- Ditch end radial gate

The minimum replacement value of these structures is $165,000. These structures work in smaller floods, but do not eliminate damage from huge floods.

Farmer's Pawnee Canal Company has 14 augmentation ponds and is constructing new ponds and new wellheads to lessen drought impacts.

Highline Electric Association has established a new substation on E. side of Platte River to power City sewage plant, which flooded in 1965 and 1967.

Sterling Correctional Facility can shelter and feed an additional 2,000 in an emergency, such as a prolonged closure of I-76

Peetz School is a designated shelter (with a keypad lock), and has 5 school buses and food available, if necessary

Logan County Mitigation Goals & Recommendations

Goal: Improve Logan County Capability to Reduce Disaster Losses

Action Item #1: ***County should work to become certified as "Storm Ready" by National Weather Service.***

Issue Statement: A primary goal of the Northeast Colorado Emergency Managers Association multi-jurisdictional DMA Hazard Mitigation Plan is for each County to become "Storm Ready" certified within the next three years. "Storm Ready" certification is an indication that the community has prepared for adverse weather conditions, trained officials and citizens to recognize and report adverse weather conditions, and has established and regularly tested a system for receiving and disseminating severe weather information and warnings to the public.

Implementation Manager and strategy: Sterling City/Logan County Emergency Manager will contact the National Weather Service to determine what Logan County needs to accomplish, and then seek funding through grants to make the necessary improvements. Among the known deficiencies are the lack of a County Emergency Operations Center (EOC) and a set of hazardous weather Emergency Operating Procedures (EOP)

Priority: High

Cost Estimate: $60,000 for Emergency Warning Notification system, additional sirens (e.g., Merino needs an all-hazards siren), NOAA "Weather Radio" "repeaters," and NOAA "Weather Radios" and scanners for all government buildings, plus any necessary training, and public education. (EOC is a separate recommendation).

Cost-Effectiveness Explanation: The potential for saving just one life, and providing time for individuals and businesses to take effective actions to protect property, far outweighs the potential cost of the warning system and equipment. This goal and recommended

action was selected by the MCPC due to its return on investment and relative ease in achieving. It may be the single most effective action the County and the entire Planning Area can undertake to reduce future disaster losses. Cost-effectiveness of EOC addressed separately.

2009 Update: County is now Storm Ready Certified. Work continues on updating and maintaining the requirements to remain certified.

2014 Update: County is recertified a 2nd time. Work continues on updating and maintaining the requirements to remain certified.

Action Item #2: ***County should work to increase weather alert speed.***

Issue Statement: The Sterling Emergency Communications Center currently uses sirens, cable TV override, the RUOK telephone system, and police/fire/ambulance radio frequencies to broadcast warnings. In addition, information is forwarded to two local radio stations. Establishing a dedicated local public frequency for alerts would allow dispatchers to warn the public directly, more quickly.

Implementation Manager and strategy: Sterling City/Logan County Emergency Manager and the Sterling Emergency Communications Center. Seek funding through grants to fund the necessary improvements.

Priority: High

Cost Estimate: $15,000

Cost-Effectiveness Explanation: Again, the potential for saving just one life, and providing time for individuals and businesses to take effective actions to protect property, far outweighs the potential cost of the warning system and equipment.

2009 Update: Tornado sirens in Sterling are tested weekly during storm season. The City maintains and tests the cable-override notification system weekly. A new telephone emergency mass notification system for the entire County was implemented. This system now includes cell phones and VOIP lines.

2014 Update: Warning sirens in Fleming, Crook, Iliff, Peetz and Merino were connected via VHF radio to the Sterling Emergency Communications Center. Having one central location provides uniform deployment protocols and prevents citizens having to physically go to a siren location to deploy,

Action Item #3: ***County should establish a Local Emergency Planning Committee and complete the development of the multi-jurisdictional Local Emergency Operations Plan (LEOP).***

Issue Statement: Sterling City/Logan Office of Emergency Management is in the process of combining and updating the city and County LEOP. In the past, only a volunteer served as the Chairman of a one-person committee.

Implementation Manager and strategy: Sterling City/Logan County Emergency Manager. LEPC will be used as an all-hazard planning and mitigation committee. The LEPC will lead the development, exercise and maintenance of the LEOP, under the direction of the Emergency Manager. The LEPC will also serve as the local Citizen Corps council, and the mandated LEPC required under EPA's SARA Title III.

Priority: High

Cost Estimate: $4,000 total: $3K for the LEOP and $1K for the LEPC.

Cost-Effectiveness Explanation: LEPC would coordinate planning and mitigation efforts County-wide. The LEPC and LEOP are requirements of EPA and FEMA, respectively

2009 Update: The Logan County LEPC meets with regular monthly meetings. Work continues on updating the LEOP. The LEPC maintains a SARA Title III-Tier II Report Chemical Storage Database.

2014 Update: The Logan County EOP was updated in 2012. Contact information was updated and a Mass Casualty Annex was added to ESF 8.

Action Item #4: ***County should pursue the development of a combined Emergency Operations Center/Communications Center for Logan County and Sterling.***

Issue Statement: Logan County has no dedicated EOC location. The City of Sterling only has the Council Chambers to use as an EOC in the event of an emergency or disaster. The Council Chambers has no communications, media or computer capabilities. An Ad Hoc EOC will significantly hinder emergency response, coordination, and management of any event. Co-locating with a Communications Center will improve the capabilities of both operations. This activity also provides a step forward towards Storm Ready certification by the NWS.

Implementation Manager and strategy: Elected Officials of City of Sterling and Logan County.

Priority: High

Cost Estimate: Approximately $3 Million. Funding can be obtained through bonds, grants, and E-911 fees.

Cost-Effectiveness Explanation: This would provide a long-term solution to the crowded and inadequate Communications Center and establish an EOC facility.

2009 Update: The current location of the Logan County EOC is at the NE CO Health Department. There is a defined area for the EOC, and it's very well equipped with needed forms and electronic connections. The building is not a shelter or hardened. The large windows need storm shutters. An emergency back-up power supply is needed. A new EOC building is under construction. The new building will be built to hard shelter specifications and have UPS with a back-up power supply. The new EOC will share building space with the new Communications Center, making communication between the two much easier. The current EOC will continue to be used in health emergencies and as an overflow site for the sheltered EOC.

2014 Update: The new Logan County / Sterling Combined EOC was completed in 2010. It is a dedicated EOC only facility located next to the Emergency Communications Center. The structure is hardened to withstand a EF5 tornado. It has an emergency backup generator and UPS. It is equipped with electronic connections, wireless and wired internet, phone lines, computers and forms. The EOC facility at the NE CO Health Department acts as a backup or a companion facility depending on the incident. The EOC was used extensively during the September 2013 Platte River Flood.

Goal: Reduce Losses of Life and Property from Floods, Droughts and Storms/Tornadoes

Action Item #5: ***Implement the Pawnee Creek Flood Mitigation Project(s).***

Issue Statement: Pawnee Creek flooded in 1997 causing nearly $20 million in losses. Engineering and cost/benefit studies have been completed. The project(s) consist of reconstructing bridges and widening channels that pass beneath; and constructing a channel to the Platte River. Some levees would also be required.

Implementation Manager and strategy: Logan County Water Conservancy District (LCWCD). The LCWCD is scheduled to begin discussion with the engineers that developed the designs and studies in the near future.

Priority: High

Cost Estimate: Estimates range between $10 and $20 million, depending upon the level of implementation. Funding can be obtained through a Mil Levy and Flood Mitigation grants.

Cost-Effectiveness Explanation: This would prevent waters from flooding property and allow water to flow to the South Platte.

2009 Update: Dikes, berming, and a substantial flow channel still need to be constructed southwest of Sterling.

2014 Update: Dikes, berming, and a substantial flow channel still need to be constructed southwest of Sterling. CDOT has rebuilt bridges at Hwy 14 and Hwy 6 to greatly increase flow under them.

Action Item #6*:* ***Implement the Sand Creek Flood Mitigation Project for Sterling.***

Issue Statement: This project is currently under development through the NRCS and FSA. The project consists of a series of dams to contain flooding and remove North Sterling from the floodplain.

Implementation Manager and strategy: Logan County Water Conservancy District (LCWCD) with NRCS and FSA

Priority: High

Cost Estimate: $2-5 million. Funding can be obtained through a Mil Levy for the local cost-share (35%). NRCS programs can provide 65% project funding.

Cost-Effectiveness Explanation: This would reduce future flood damages and eliminate the annual expense of mandatory flood insurance purchase by removing the entire portion of North Sterling from the identified floodplain.

Action Item #7: ***Construct a multi-purpose flood control dam at Pawnee Pass.***

Issue Statement: In conjunction with the Pawnee Flood Mitigation Project, this structure would control flood waters at an upstream location. It is currently in the feasibility study stage. The facility would be multi-objective, allowing for water conservation, drought mitigation, and flood control.

Implementation Manager and strategy: Logan County Water Conservancy District (LCWCD).

Priority: Medium

Cost Estimate: $5-8 million. Funding can be obtained through a Mil Levy, NRCS, grants, and NE Colorado Water District.

Cost-Effectiveness Explanation: This would reduce future flood damages and also serve as a water conservation and drought mitigation project.

2014 Update: Work still continues on the Pawnee Pass Flood Control dam. Costs are very high putting the project in jeopardy.

Action Item #8: ***Construct additional small retention ponds throughout the watershed.***

Issue Statement: This project has been requested by many individual landowners. The retention ponds are to serve as flood and drought mitigation facilities.

Implementation Manager and strategy: Logan County Water Conservancy District (LCWCD) and NRCS.

Priority: Low

Cost Estimate: Unknown at this time. Depend upon number of structures, size and location. Structures should be built on basis of availability of funds and the order in which they are requested.

Cost-Effectiveness Explanation: PROBLEMS: Public money for private property. Should be built for B/C not first come first served. All projects are built on basis of availability of funds.

2014 Update: No further information.

Action Item #9: ***Promote the construction of model and full-scale tornado shelters and "Safe-Rooms".***

Issue Statement: On average, over the past 47 years, Logan County has experienced at least one tornado each year. While damage has been minimal to date, it is merely a matter of time before a more serious event occurs. "Safe-Rooms" have been proven to be effective, have been "pre-designed," and are relatively inexpensive.

Implementation Manager and strategy: County Emergency Manager, in conjunction with local building materials suppliers and schools or Sterling Correctional facility.

Priority: Medium

Cost Estimate: $5,000 in grants and/or private donations.

Cost-Effectiveness Explanation: Project will encourage people to construct private "Safe-Rooms." Preventing one loss of life or serious injury from wind or other hazards would be worth the expense.

Action Item #10: ***Sterling should undertake a targeted Public Education program for the 1,324 uninsured flood prone property owners. Crook should undertake a targeted Public Education program for the 109 uninsured flood prone property owners.***

Issue Statement: Of the 1,660 properties identified within the mapped floodplain of Sterling, only 344 carry flood insurance policies issued through the NFIP. Of the 115 properties identified within the mapped floodplain of Crook, only 6 carry flood insurance policies issued through the NFIP. Sterling and Crook should undertake public information campaigns to ensure that floodprone 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.

Priority: High

Cost Estimate: Existing budgets to develop and conduct survey by mail or telephone. 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 who choose to insure against flood losses, and to taxpayers who no longer would have to subsidize those losses.

2014 Update: There has been an increase in NFIP policies countywide since the 2013 Platte River flood.

Action Item #11: ***Logan County should provide "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 enormous lack of flood insurance in Sterling and Crook 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.

Implementation Manager and strategy: City/County Emergency Manager, in conjunction with the Sterling Floodplain Management Administrators should invite the CWCB to conduct "Refresher Training" for both lenders and insurance agents. CWCB 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.

Action Item #12: ***Sterling and Crook should conduct the one-day flood recovery & mitigation exercise as an awareness tool for local officials***

Issue Statement: Significant portions of Sterling, and all of Crook, are built in and around the floodplain, and floods would cause considerable damage and hardship within these communities. 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.

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

Priority: Medium

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.

Action Item #13: ***Promote the benefits of the crop insurance to the County agricultural community***

Issue Statement: Agricultural losses are the #1 annual dollar loss in Logan 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.

Action Item #14: ***Conduct a Public Education Campaign that addresses both Water Conservation and Tornado Safety.***

Issue Statement: For Water Conservation, create a display for use at the Logan County Fair. Develop Public Service Announcements. Issue "Conservation Awards" to homes, businesses, and industries with exemplary practices. For Tornado Safety, reach out to rural schools, businesses and groups. Many from the outlying communities are unable to travel to Sterling for classes such as Weather Spotting."

Implementation Manager and strategy: City/County Emergency Manager, in conjunction with NRCS for Water Conservation and NWS for Tornado Safety.

Priority: Medium

Cost Estimate: $6,000 for both programs.

Cost-Effectiveness Explanation: The benefits are in the potential for saving just one life, and providing time for individuals and businesses to take effective actions to protect property. Public education can be one of the most effective methods in reducing future property losses. The weather education efforts can bring severe weather education to 10,000 rural County residents. Providing awards creates public attention to "best management practices" and creates incentives for other private sector participation in similar efforts.

Additional Action Items to be addressed by CPS.

- Each incorporated community with a mapped floodplain should inventory critical facilities within the floodplain to determine if they should be protected. Facilities would include power substations, water sources such as wellheads, sewage treatment facilities, police and fire stations, hospitals, and nursing homes.
- Investigate the feasibility of installing both "dry hydrants' and dedicated irrigation wells to augment water supply for fire suppression. Dry hydrants allow for water to be drawn easily from existing water sources such as ponds and lakes. Irrigation wells could be used for water supply if there were proper couplings to hook-up equipment. The wells are usually turned off during the winter months.
- Continue to request FEMA to revise the floodplain maps in Sterling.
- Coordinate the collection of critical infrastructure and key assets (CI/KA) for the Sterling Fire Department to meet Homeland security needs.

2014 Update

Additional Action Items to be addressed by CPS.

- Each incorporated community with a mapped floodplain should inventory critical facilities within the floodplain to determine if they should be protected. Facilities would include power substations, water sources such as wellheads, sewage treatment facilities, police and fire stations, hospitals, and nursing homes.
- Warning sirens in small towns to be connected to dispatch via VHF radio for a central deployment. *(Completed)*
- The City and the County should adopt FEMA revised floodplain maps when they become available in late 2014.

New Action Items for 2014

Action Item #15: ***New warning siren at Franklin Park in Sterling for the downtown area.***

Issue Statement: Warning siren system at Franklin Park is outdated and in need of replacement.

Implementation Manager and strategy: City/ County Emergency Manager

Priority: High

Cost Estimate: $25,000

Cost-Effectiveness Explanation: Project enhances public safety by improving warning for downtown business center of largest city in Logan County.

Action Item #16: ***New flood mitigation wall and gate around the Sterling Sewer Facility headworks.***

Issue Statement: Sterling WWTP requires flood protection to mitigate damage to headworks during high flows.

Implementation Manager and strategy: City of Sterling, City/ County Emergency Manager.

Priority: Medium

Cost Estimate: Cost estimates under development.

Cost-Effectiveness Explanation: Benefit-cost analysis to be performed.

Action Item #17: ***New emergency backup power generator at the Sterling Service Center to allow the fueling of county and city emergency vehicles during power shutdowns.***

Issue Statement: Sterling Service Center operations are vulnerable to extended power disruptions caused by high winds, severe winter storms, thunderstorms and other natural hazards.

Implementation Manager and strategy: City of Sterling, Logan County, City/ County Emergency Manager.

Priority: High

Cost Estimate: $40,000

Cost-Effectiveness Explanation: The inability to fuel county and city vehicles as a result of an extended power outage would compromise public safety, restrict emergency services, and lead to undetermined adverse economic impacts.

Action Item #18: ***Develop new recharge wells at the Scalva Farms site to relieve pressure on the S. Platte River during high flow.***

Issue Statement: One of several Action Items designed to address flood-prone areas in Logan County and the City of Sterling. Engineering studies and design in process.

Implementation Manager and strategy: Logan County Water Conservancy District (LCWCD) with NRCS and FSA.

Priority: Medium

Cost Estimate: Can be accomplished within existing budgets..

Cost-Effectiveness Explanation: TBD

Action Item #19: ***Review New Draft Flood Risk Report and Incorporate Findings into Flood Hazard Mitigation Planning Efforts.***

Issue Statement: A new *Flood Risk Report (Draft July 2014, Version 001) for Crook, Fleming, Iliff, Merino, Peetz, Sterling and Logan County* was released during the 2014 CPE update process, but too late for integration into the current revisions. Stakeholders will review the final report and corresponding FIRM and incorporate the new flood risk information into overall flood hazard mitigation planning in the area.

Implementation Manager and strategy: Logan County, City of Sterling, Affected Towns, Logan County Water Conservancy District (LCWCD) with NRCS and FSA.

Priority: Medium

Cost Estimate: Cost estimates under development.

Cost-Effectiveness Explanation: Potential benefits to broad range of stakeholders at minimal cost.

Actions identified at CPS Actions Meeting in 2014:

- Two new tornado shelters. One on the west end of Sterling at 12th and Platte and the other east by the Welcome Center at CO6 and LCR 370.
- Long term and short term Pet Shelters located close to human shelters.
- Battery backup power added to all warning sirens in the city and small towns in the county.
- Emergency backup power infrastructure (i.e. hook ups and switchover panels) at the long term shelter at the Sterling Middle School.
- Storm sewer infrastructure upgrades throughout the city of Sterling.
- Dedicated tornado shelters in the counties small towns. All should be handicap accessible.

Name: Tallgrass
Address: Lakewood, Co.
Row Permit # 2015-27

AGREEMENT TO USE LOGAN COUNTY RIGHT OF WAY
INDIVIDUAL PERMIT

THIS AGREEMENT made this (**County fills in**) _____day of _____, _____, by and between the County of Logan, State of Colorado, hereinafter called "County", and HIGHLINE ELECTRIC ASSOC. the undersigned easement holder or landowner, hereinafter called "Applicant".

WHEREAS, Applicant owns the following described premises, or has an easement on, over or through said premises, to-wit (legal description): T7N - R47W - SEC31, NW 1/4 AND T7N - R48W - SEC 36, NE 1/4; and

WHEREAS, Applicant desires to install and construct a 4" CONDUIT FOR ELECTRIC LINE, which will be located **(Circle One)** along, (under,) or across PHILLIPS COUNTY RD 1 Logan County Rd 97/ RQ, to benefit the above described premises; and

WHEREAS, the County is willing to allow such installation and construction by Applicant, but only upon the terms and covenants contained herein.

NOW, THEREFORE, in consideration of paying the County the sum of **$100.00** or **$200.00** and keeping of the terms and covenants contained herein, the parties agree as follows:

- ✓ Applicant agrees to furnish the County in writing in advance of installation the exact location and dimensions of said installation and construction.

- ✓ Buried installations must be at no less than 48 inches below the lowest level of any borrow ditch paralleling the County Road and an "Individual permit" must be submitted for each instance.

- ✓ Applicant shall have the right to install and construct CONDUIT BORE, described above, in the right of way of LOGAN COUNTY, but such installation and construction shall be done only in the following manner. All work within the county ROW shall be performed only during regular business hours of the Logan County Road & Bridge Department to enable supervision and inspection of the work.

- ✓ All work authorized by this Agreement **shall be completed no later than** 8/1/15.

- ✓ It is understood that no paved or oil-surfaced road shall be cut and will be crossed by boring only. For other roads and crossings of County property after installation. Applicant shall restore the surface to the same condition as existed prior to such construction.

- ✓ All cost and expense of installation, construction, maintenance, removal, or replacement is to be paid by the Applicant.

- ✓ The traveling public must be protected during this installation with proper warning signs or signals both day and night. Warning signs and signals shall be installed by and at the expense of Applicant.

TALLGRASS ROW 2015-17
Bore
From NW4 Sec 31-7-47
To NE4 Sec 36-7-48

Name: Tallgrass
Address: Lakewood, Co
Row Permit # 2015-27

☑ Applicant hereby releases the County from any liability for damages caused by said _____, whether caused by employees or equipment of the County, or others, at any time. Further, Applicant agrees to protect, save and hold harmless, and indemnify the County from and against all liability, loss, damages, personal injuries or expenses suffered by or imposed against the County by reason of the construction, installation or maintenance of the above described improvement.

☑ No perpetual easement or right of way is granted by this instrument and should Applicant's use of said right-of-way interfere with the County's use, or intended use of said right-of-way, Applicant will remove or relocate the same upon demand of the County. Applicant shall pay all costs of such removal or relocation.

☑ This Agreement shall be a covenant running with the above-described real property and shall be binding upon the parties hereto, their heirs, successors, personal representatives, and assigns.

☐ Other Provisions: _____

Owner #1
Rick Ensminger Printed name RICK ENSMINGER
Signature

Owner #2
David S Rodenberg Printed Name David Rodenberg
Signature

SLB ownership: (T7N - R48W Sect 36)
SLB CONTRACT ROW # 109690

Individual Right-of-Way Permit Applicant:
DAVID STAHL
Printed name
Signature
Address: 8184 LONE MAPLE LN
LONE TREE, CO 80124

Receipt #176120
Paid 6/17/2015

Application Fee Paid $100.00 CHECK 14443

Date 2/27/15

Signed at Sterling, Colorado the day and year first above written.

THE BOARD OF COUNTY COMMISSIONERS
LOGAN COUNTY, COLORADO

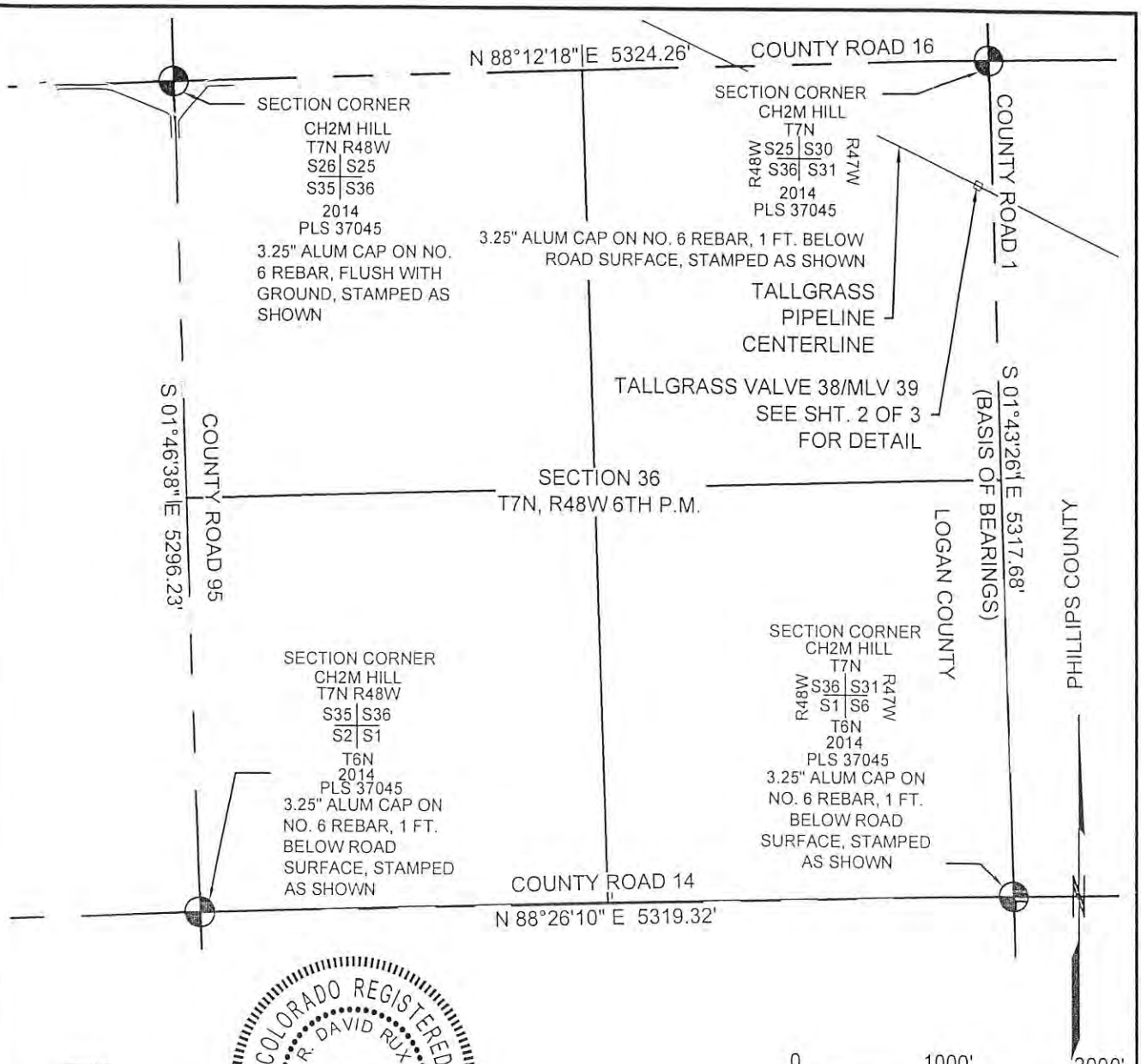
Rocky L. Samber (Aye) (Nay)

Gene A. Meisner (Aye) (Nay)

David G. Donaldson (Aye) (Nay)

Rev. 5/2014

TALLGRASS ROW 2015-17
Bore
From NW4 Sec 31-7-47
To NE4 Sec 36-7-48



COLORADO REGISTERED
R. DAVID RUX
37045
PROFESSIONAL LAND SURVEYOR

LEGEND

MONUMENT FOUND AS DESCRIBED

P.O.B. POINT OF BEGINNING

P.O.C. POINT OF COMMENCEMENT

SEE ATTACHED DESCRIPTION WHICH BY THIS REFERENCE IS MADE PART HEREOF.

REVISIONS

NO.	DATE	BY	DESCRIPTION
A	04/07/15	RDR	ADD UG ELEC EASEMENT

TALLGRASS ENERGY PARTNERS

EXHIBIT A

STATE OF COLORADO
ABOVE GROUND VALVE SITE 38/MLV 39

NORTHEAST ONE-QUARTER OF SECTION 36
TOWNSHIP 7 NORTH, RANGE 48 WEST OF THE 6th P.M.

DRAWN BY: RDR | CHECKED BY: DMK | DATE: 04/07/15

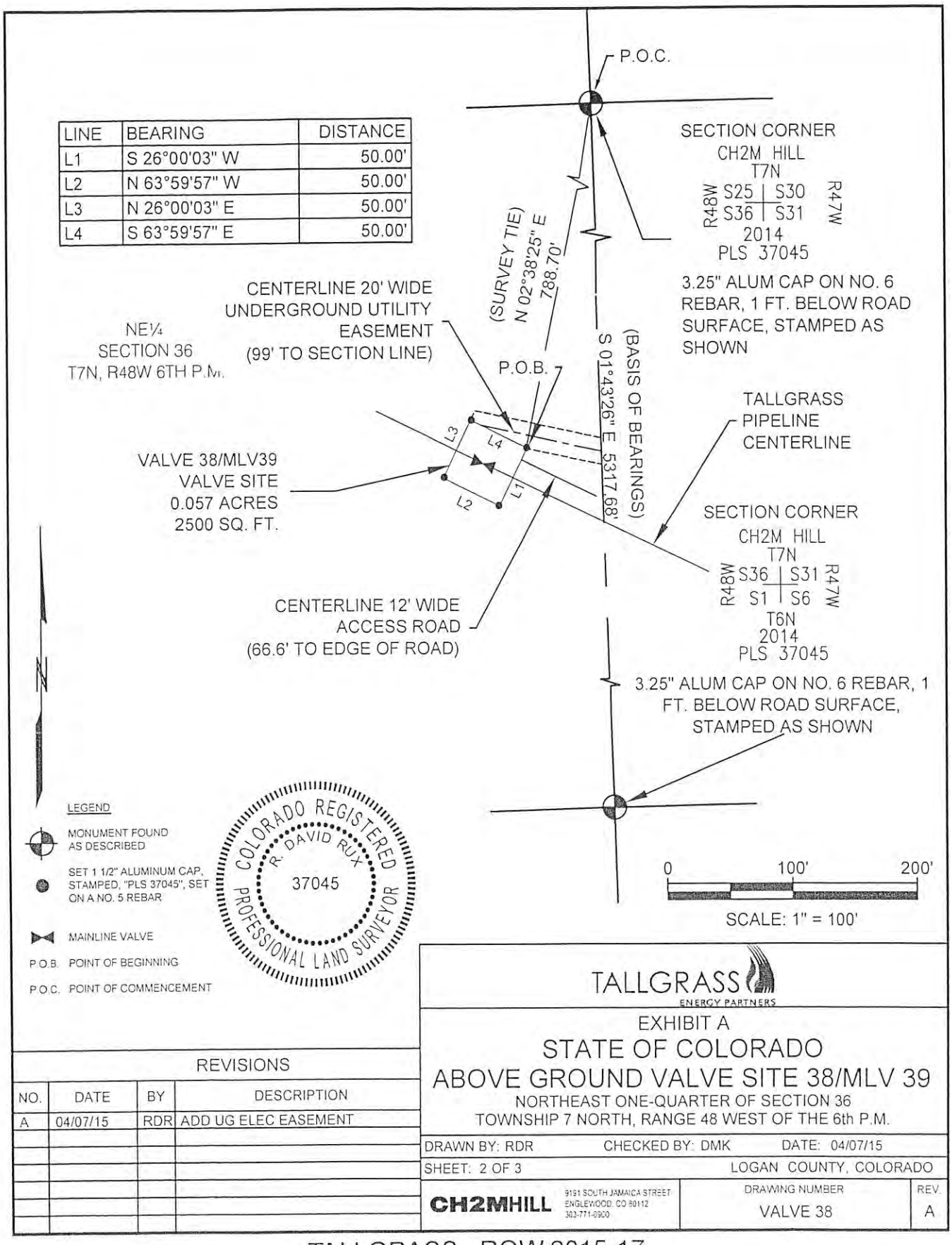
SHEET: 1 OF 3 | LOGAN COUNTY, COLORADO

CH2MHILL
9191 SOUTH JAMAICA STREET
ENGLEWOOD, CO 80112
303-771-0900

DRAWING NUMBER: VALVE 38

REV: A

TALLGRASS ROW 2015-17
Bore
From NW4 Sec 31-7-47
To NE4 Sec 36-7-48



LINE	BEARING	DISTANCE
L1	S 26°00'03" W	50.00'
L2	N 63°59'57" W	50.00'
L3	N 26°00'03" E	50.00'
L4	S 63°59'57" E	50.00'

LEGEND

- MONUMENT FOUND AS DESCRIBED
- SET 1 1/2" ALUMINUM CAP, STAMPED, "PLS 37045", SET ON A NO. 5 REBAR
- MAINLINE VALVE
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT

COLORADO REGISTERED R. DAVID RUX 37045 PROFESSIONAL LAND SURVEYOR

REVISIONS			
NO.	DATE	BY	DESCRIPTION
A	04/07/15	RDR	ADD UG ELEC EASEMENT

TALLGRASS ENERGY PARTNERS

EXHIBIT A

STATE OF COLORADO
ABOVE GROUND VALVE SITE 38/MLV 39

NORTHEAST ONE-QUARTER OF SECTION 36
TOWNSHIP 7 NORTH, RANGE 48 WEST OF THE 6th P.M.

DRAWN BY: RDR | CHECKED BY: DMK | DATE: 04/07/15

SHEET: 2 OF 3 | LOGAN COUNTY, COLORADO

CH2MHILL 9191 SOUTH JAMAICA STREET ENGLEWOOD, CO 80112 303-771-0900

DRAWING NUMBER: VALVE 38 | REV.: A

TALLGRASS ROW 2015-17
Bore
From NW4 Sec 31-7-47
To NE4 Sec 36-7-48

DESCRIPTION:

A PORTION OF THAT PARCEL OF LAND DESCRIBED IN THAT DOCUMENT ENTITLED THE "ENABLING ACT" FOR THE STATE OF COLORADO, TO RESERVE SCHOOL LANDS DESCRIBED AS THE SECTIONS NUMBERED 16 AND 36 IN EVERY TOWNSHIP SAID PARCEL BEING PART OF THE NORTHEAST ONE-QUARTER OF SECTION 36, TOWNSHIP 7 NORTH, RANGE 48 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF LOGAN, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:
COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 36,

THENCE SOUTH 02°38'25" WEST A DISTANCE OF 788.70 FEET TO THE **POINT OF BEGINNING**;

THENCE SOUTH 26°00'03" WEST A DISTANCE OF 50.00 FEET;

THENCE NORTH 63°59'57" WEST A DISTANCE OF 50.00 FEET;

THENCE NORTH 26°00'03" EAST A DISTANCE OF 50.00 FEET;

THENCE SOUTH 63°59'57" EAST A DISTANCE OF 50.00 FEET, MORE OR LESS, TO THE **POINT OF BEGINNING**.

CONTAINING 0.057 ACRES (2,500 SQUARE FEET) OF LAND, MORE OR LESS.

TOGETHER WITH A UNDERGROUND UTILITY EASEMENT AND THE RIGHT OF ACCESS FOR THE ABOVE DESCRIBED PARCEL TO AND FROM LOGAN COUNTY ROAD 1 GENERALLY DEPICTED HEREON.

THE BASIS OF BEARINGS IS THE EAST LINE OF SAID SECTION 36, BASED ON GPS OBSERVATIONS AND PROJECTED TO UTM 13 NORTH, NAD83 (GRID), WHICH BEARS SOUTH 01°43'26" EAST AND IS MONUMENTED ON THE NORTH END BY THE NORTHEAST CORNER OF SECTION 36 BEING A 3 ¼" ALUMINUM CAP STAMPED PLS 37045 2014, AND ON THE SOUTH END BY THE SOUTHEAST CORNER OF SECTION 36, BEING A 3 ¼" ALUMINUM CAP STAMPED PLS 37045 2014, AS SHOWN HEREON.

I, R. DAVID RUX, A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF COLORADO HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF ON THE DATE OF MY SIGNATURE, THIS EXHIBIT ACCURATELY REPRESENTS THE FACTS FOUND AT THE TIME OF A SURVEY MADE UNDER MY RESPONSIBLE CHARGE.

FOR AND BEHALF OF
CH2M HILL ENGINEERS, INC.

R. DAVID RUX
PROFESSIONAL LAND SURVEYOR
COLORADO REGISTRATION NO. 37045

NOTES:

1. THIS EXHIBIT WAS PREPARED WITHOUT THE BENEFIT OF A TITLE COMMITMENT AND THEREFORE CH2M HILL ENGINEERS, INC. HAS NOT RESEARCHED OR SHOWN ANY OTHER EASEMENTS, RIGHTS-OF-WAY, VARIANCES AND OR AGREEMENTS OF RECORD EXCEPT AS SHOWN HEREON.

2. ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF CERTIFICATION SHOWN HEREON.

3. THE BEARINGS SHOWN HEREON ARE UTM, ZONE 13, NAD 83 USFT. ALL DISTANCES SHOWN HEREON ARE GRID DISTANCES.

SEE ATTACHED EXHIBIT WHICH BY THIS REFERENCE IS MADE PART HEREOF.

REVISIONS

NO.	DATE	BY	DESCRIPTION
A	04/07/15	RDR	ADD UG ELEC EASEMENT

TALLGRASS ENERGY PARTNERS

EXHIBIT A

STATE OF COLORADO
ABOVE GROUND VALVE SITE 38/MLV 39

NORTHEAST ONE-QUARTER OF SECTION 36
TOWNSHIP 8 NORTH, RANGE 52 WEST OF THE 6th P.M.

DRAWN BY: RDR | CHECKED BY: DMK | DATE: 04/07/15

SHEET: 3 OF 3 | LOGAN COUNTY, COLORADO

CH2MHILL
9191 SOUTH JAMAICA STREET
ENGLEWOOD, CO 80112
303-771-0900

DRAWING NUMBER: VALVE 38 | REV.: A

TALLGRASS ROW 2015-17
Bore
From NW4 Sec 31-7-47
To NE4 Sec 36-7-48