



Hazard Investigation and Risk Assessment, Land Use, and Housing Study

Community Meeting

August 11, 2015

WHY ARE WE DOING THIS?

The Jamestown Long Term Recovery Plan established the need to:

“...identify issues, opportunities and constraints relating to rebuilding lost housing and using public lands, taking into account current development regulations, and the impact that rebuilding has on the Town’s finances, services and safety.”

Funding for this Study is provided through a Community Development Block Grant for Disaster Recovery (CDBG-DR) grant administered by the Colorado Department of Local Affairs (DoLA)

WHAT is being assessed in this Study?

Project Components:

- Hazard Investigation and Risk Assessment (HIRA)
- Land Use Study
- Housing Study

WHAT are we discussing tonight?

Initial Observations regarding:

- Hazard Investigation and Risk Assessment (HIRA)
- **Our Primary Focus:**
 - Wildfire
 - Flooding
 - Geological Hazards

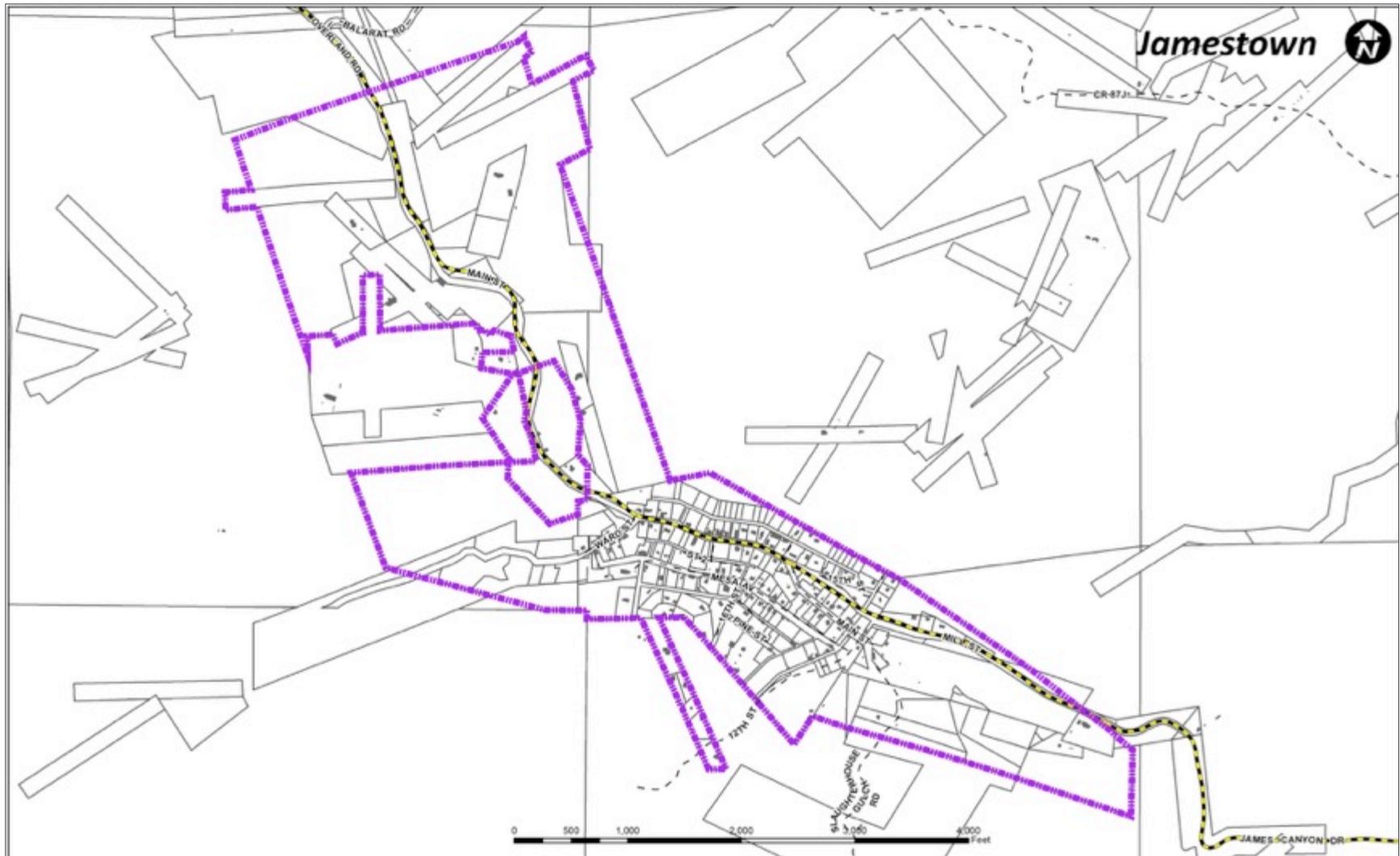
At our next community meeting – **Tues., Sept. 1st**, we will present initial observations regarding:

- Land Use Study
- Housing Study

DESIRED OUTCOMES for this Study

- Identify Jamestown's risks to natural hazards
- Make planning and growth decisions that serve residents' needs while maintaining Jamestown's unique sense of place and distinctive mountain character
- Address issues related to the Town's fiscal sustainability

Study Area



Wildfire: Initial Observations

For the Wildfire, Flooding and Geological hazards, the following work has been completed:

- Field Survey
- Observations as to changes in hazards
- Vulnerability Assessment
- Implementation Options – coordinated to LTRP goals and recommendations

Wildfire Hazards

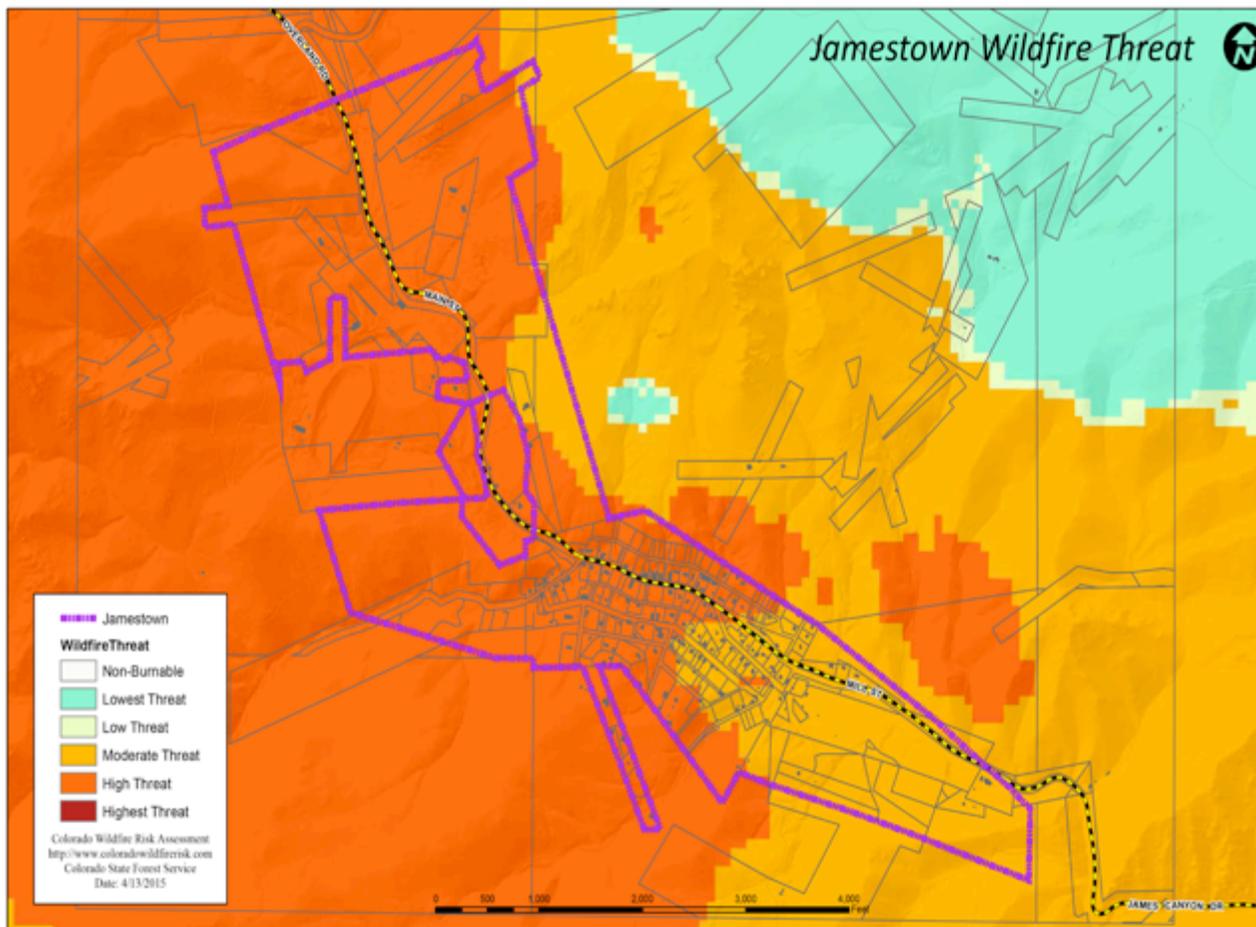
Jamestown Colorado Wildfire Risk Assessment Report looked at a dozen indicators, including:

- Fire Threat Index (FTI)
- Suppression Difficulty Rating (SDR)
- Flame Length
- Fire Intensity Scale

Wildfire Hazards

Fire Threat Index (FTI)

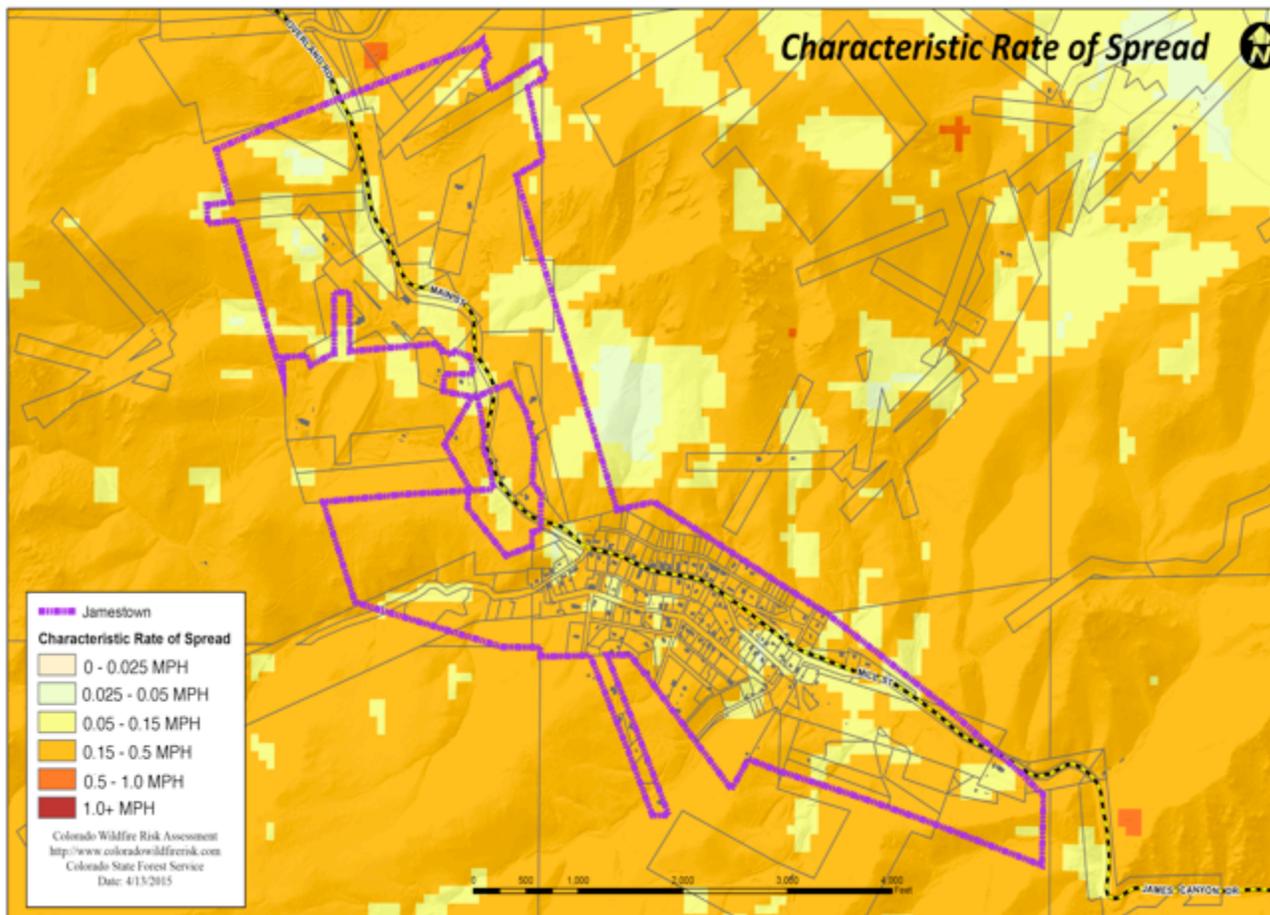
This slide represents one of many indicators that the Study has investigated including; Suppression Difficulty, Fire Occurrence, Fire Spread Rate, Flame Length and Fire Intensity.



According to the Study's investigation, Jamestown proper has a wildfire threat of moderate to high.

Wildfire Hazards

Fire Spread Rate

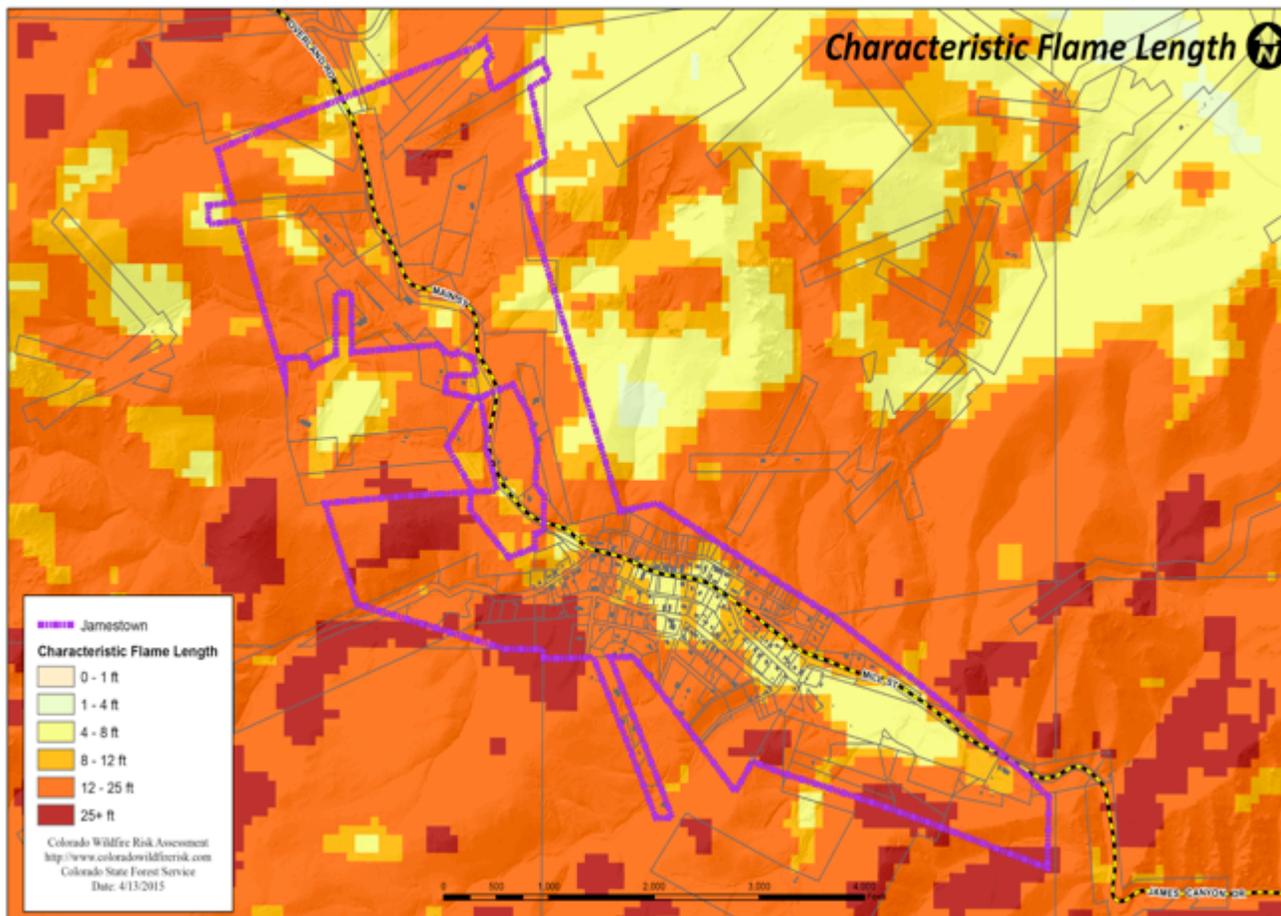


This map shows that a wildfire is likely to be moving at up to a half mile per hour when it hits Jamestown. It is a good tool for planning evacuation timing. If it will take three hours to notify Jamestown residents to evacuate and another hour for them to safely leave the area authorities must start the evacuation process when the fire is at least 2.5 miles away. Note many fires in this area are wind driven events that exceed spread rates of a half-mile per hour.

(Note that the recent loss of access roads in the forest has also reduced the town's ability to respond to wildfires.)

Wildfire Hazards

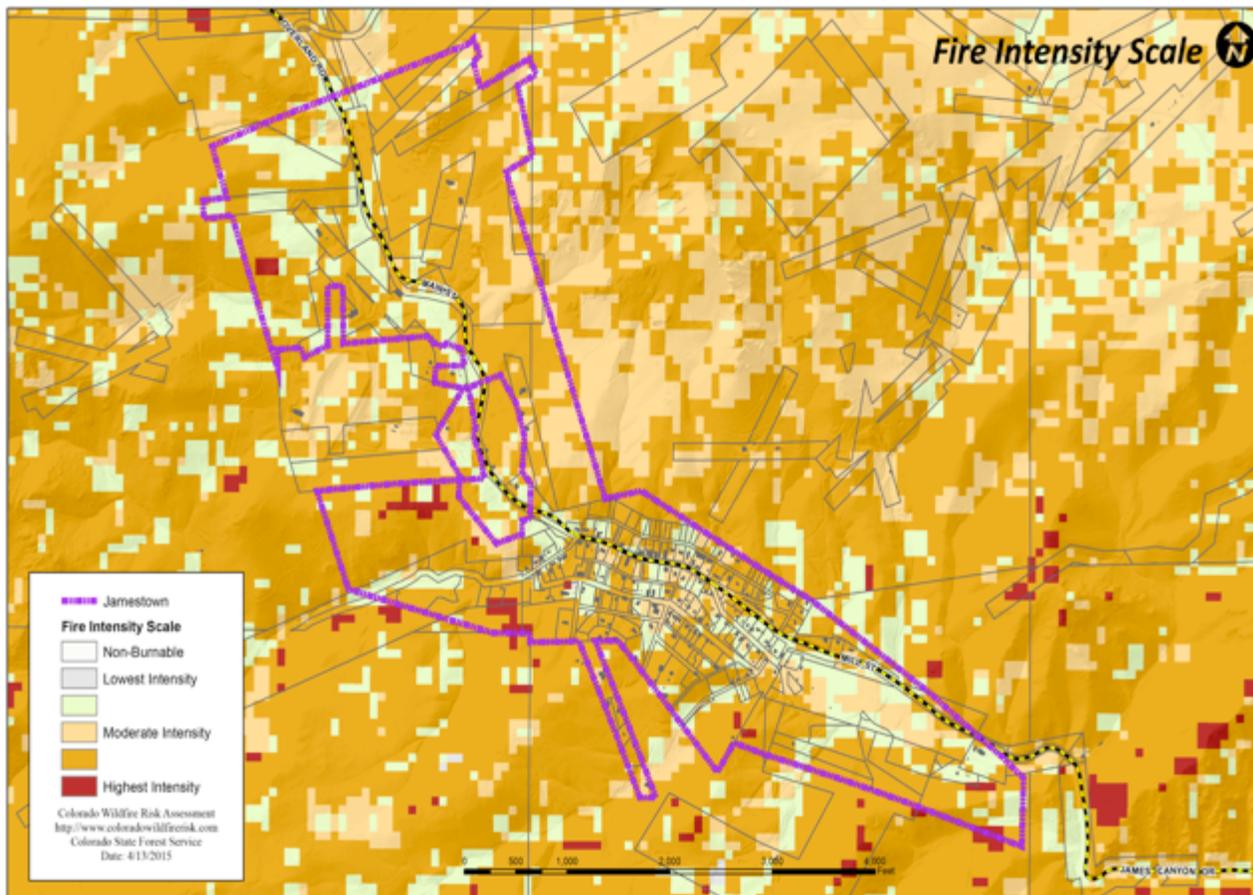
Flame Length



96% percent of the Jamestown analysis area is likely to produce wildfires with flame lengths that are problematic for firefighters.

Wildfire Hazards

Fire Intensity Scale (FIS)



63% percent of the Jamestown area is in **fire intensity scale high or above**.

High FIS areas are likely to experience large flames, up to 30 feet in length.

Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective.

Significant potential for harm or damage to life and property exists.

Wildfire Hazards

Initial Observations:

Jamestown has a high vulnerability to Wildfire:

A few observations from the Study to date:

- 63% percent of the Jamestown area is in fire intensity scale (FIS) zones of high or above.
- High FIS areas are likely to experience large flames, up to 30 feet in length, lengths that are problematic for firefighters.
- Direct attack by trained firefighters, engines, and dozers is generally ineffective; indirect attack may be effective.
- Significant potential for harm or damage to life and property exists.
- It will be difficult to suppress wildfires adjacent to Jamestown, increasing the probability that a wildfire will burn into Jamestown.
- 48% of the Jamestown wild land urban interface area has a moderate to high risk of a wildfire.

Flood Hazards

Overview

Regulatory studies

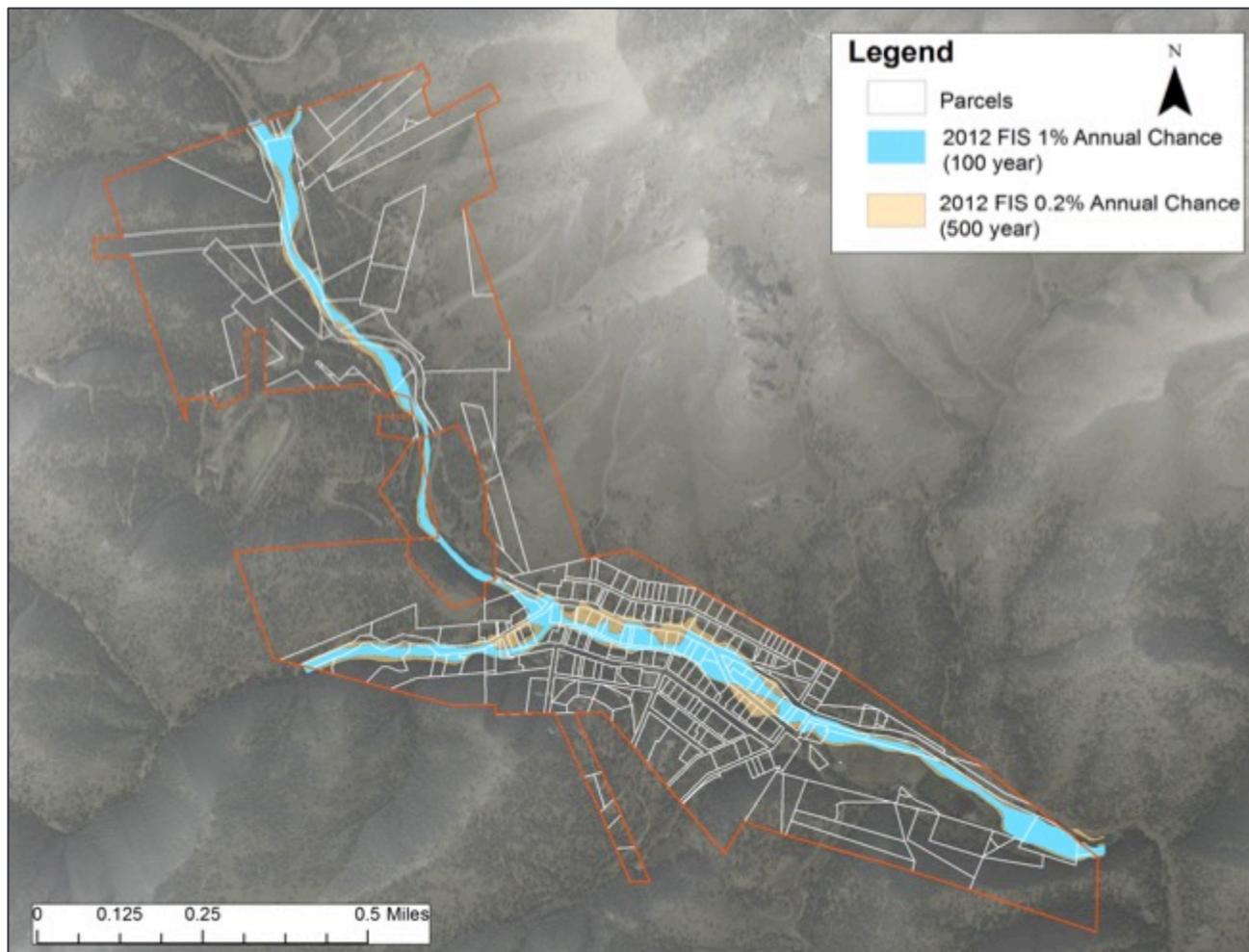
- 2012 Flood Insurance Study (FEMA, 2012).
- Provisional Flood Hazard Delineation (AMEC, 2014).
- Combined 2012 and 2014 delineation.

Potential impacts to current floodplain delineation.

- Changes in hydrology and flow rates.
- Changes channel configuration from recovery efforts following the 2014 Provisional Delineation.

Flood Hazards

2012 FEMA Flood Insurance Study (FIS)

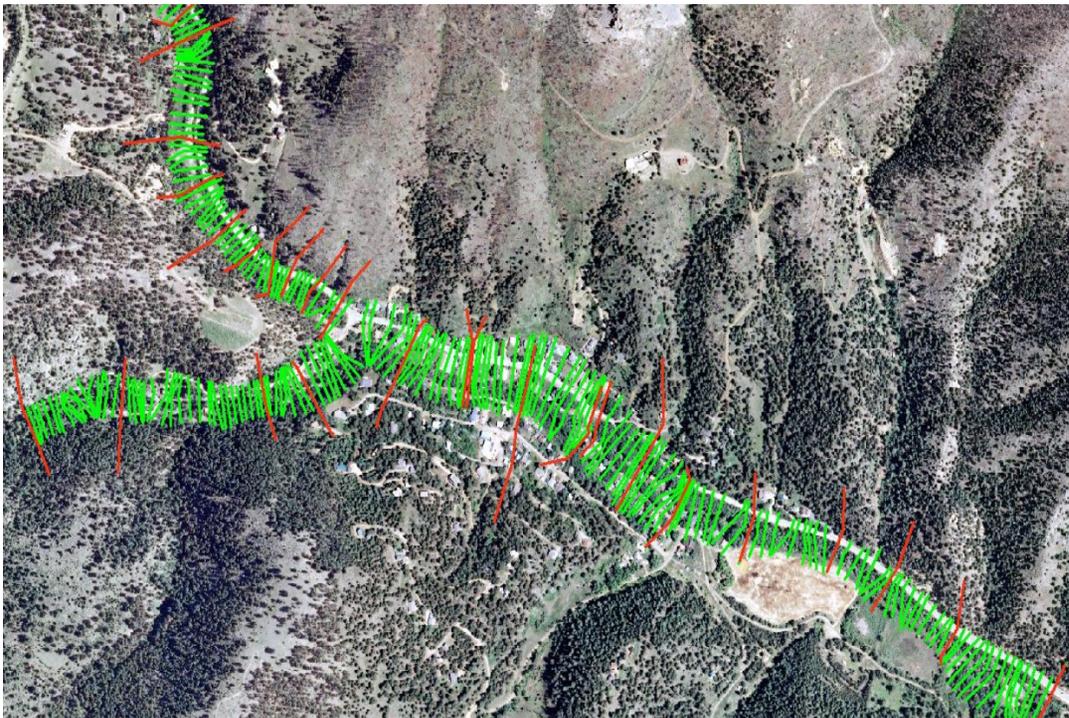


The 2012 FIS delineated the 1% annual chance and 0.2% annual chance floodplain based on hydraulic and hydrologic studies.

Hydrologic data (flow rates) were developed in various studies between 1978 and 1983.

Flood Hazards

2014 Provisional Floodplain Delineation (AMEC, 2014)



(AMEC, 2014, p. 6).

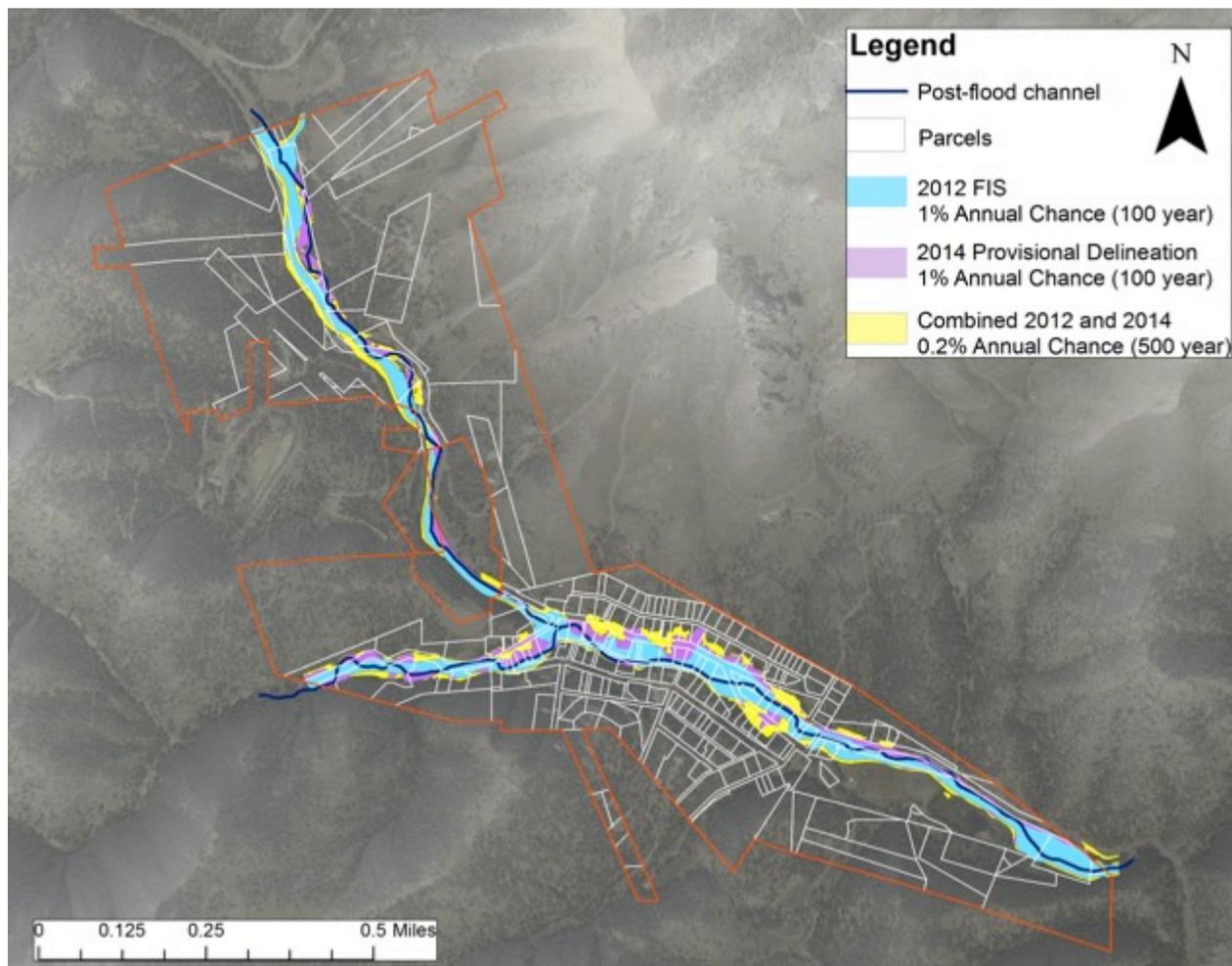
Following the 2013 flood, a provisional floodplain delineation was completed to guide post-flood recovery efforts.

A hydraulic model was developed based on terrain surveyed immediately after the 2013 flood. LiDAR data was obtained in October 2013 and further surveying was completed in December 2013, prior to any recovery and restoration efforts.

Hydrologic data was obtained from the 2012 FIS.

Flood Hazards

2012 FIS and 2014 Provisional Floodplain Delineation

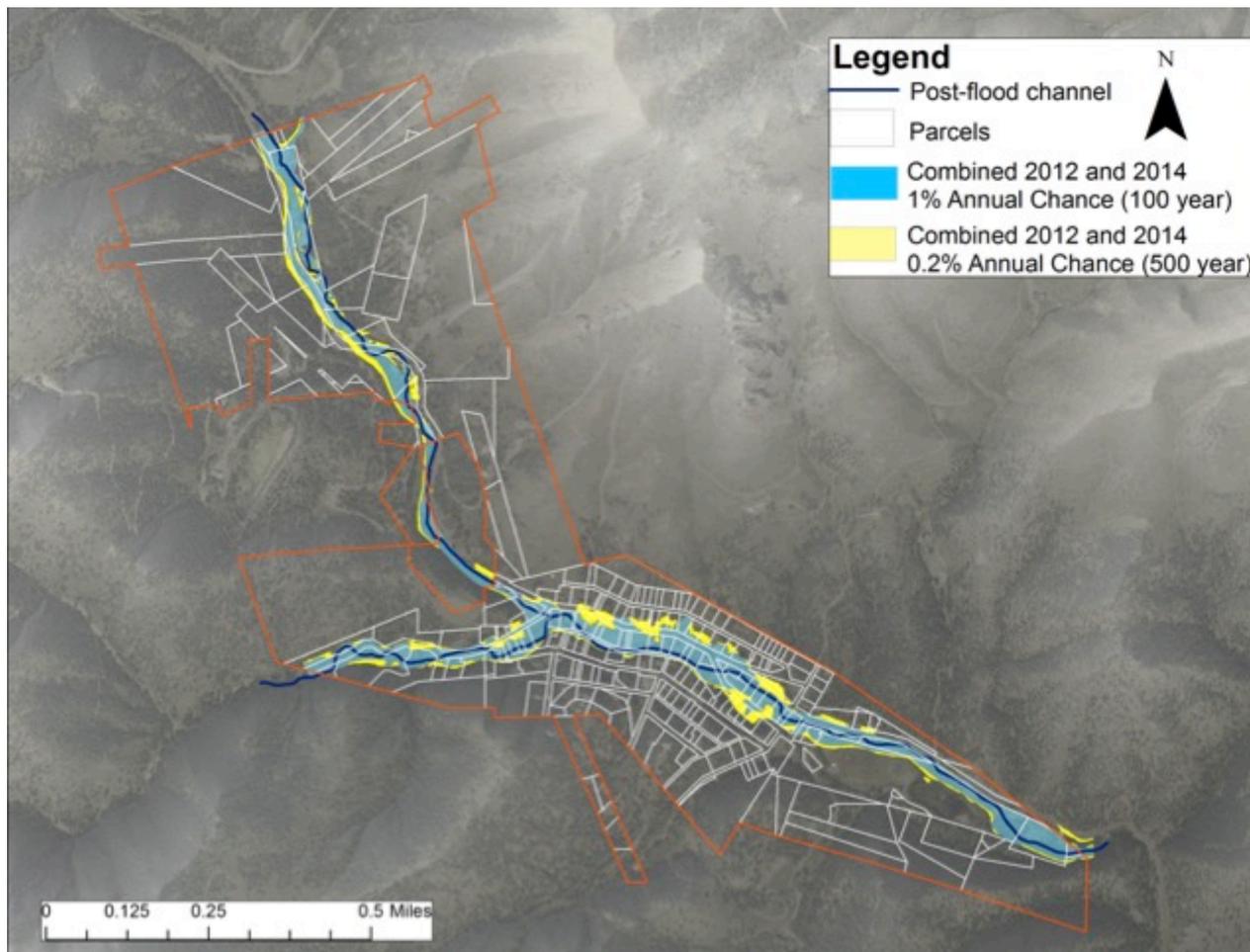


The 2014 1% annual chance floodplain varies from the 2012 delineation due to changes in channel configuration and elevation.

The flood caused scouring and aggradation along the channel, leading to changes in water surface elevation along both James Creek and Little James Creek.

Flood Hazards

Current Regulatory Floodplain based on 2012 FIS and 2014 Provisional Delineation



Flow rates for both studies were obtained from previous hydrologic and have not been revised with updated hydrologic information.

This delineation does not include changes in channel configuration resulting from the EWP work.

Flood Hazards

Potential future impacts to current floodplain delineation: Changes in flow rates.

Location	Current Regulatory Discharge (cfs)	Modeled Discharge (cfs)	Percent Difference
Little James Creek at upstream limit of detailed study	970	590	- 40%
Little James Creek upstream of confluence with James Creek	1,160	1,390	+ 19%
James Creek upstream of confluence with Little James Creek	2,140	2,340	+ 9%
James Creek at confluence with Little James Creek	3,205	2,780	- 13%
James Creek below Jamestown	3,930	3,300	- 16%
James Creek above confluence with Lefthand Creek	4,810	3,510	- 27%

(Jacobs. 2014. *Hydrologic Evaluation of the Lefthand Creek Watershed*. Prepared for CDOT).

Flood Hazards

Potential future impacts to current floodplain delineation: Post-flood Restoration Work (EWP)

- Work completed under the EWP Program included grade control and channel stabilization structures.
- Based on a review of construction documents, it appears that all EWP channel work was completed at or below the original grade of the river, leading us to believe these changes will likely not result in a rise of base flood elevations.
- However, changes in channel configuration and elevation resulting from the EWP project were not represented in the hydraulic models presented.



Photo Credit: Sal DeVincenzo



Photo Credit: Bela Amade

Flood Hazards

Summary of Initial Observations

- The 2013 Flood has affected the channel configuration of James Creek and Little James Creek.
- A comparison between the 2012 FIS and the 2014 Provisional Delineation shows a change in water surface elevations and extents for the 1% annual chance event.
- The current regulatory floodplain presented is still lacking current hydrologic data and EWP project as-built survey data.

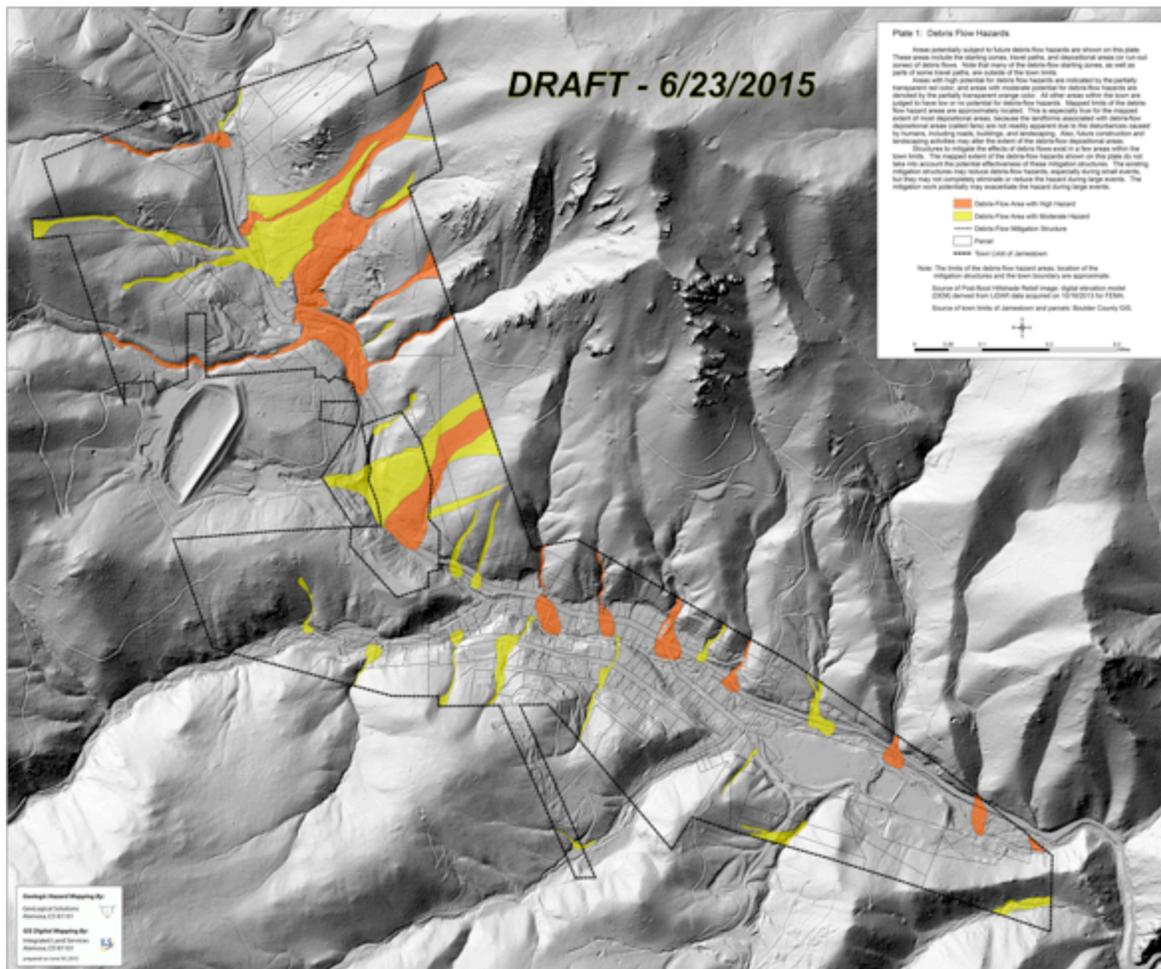
Geologic Hazards

Areas of Focus

- Debris Flow Hazards
- Slope Stability Hazards and Constraints
- Geologic Hazards and Constraints Related to Mines and Mill Tailings
- Geologic Hazards and Constraints on Valley Floors
- Seismic Hazards
- Other Types of Geologic Hazards

Geologic Hazards

Debris Flow Hazards



High hazard debris-flow areas are shown by the **burnt orange color**.

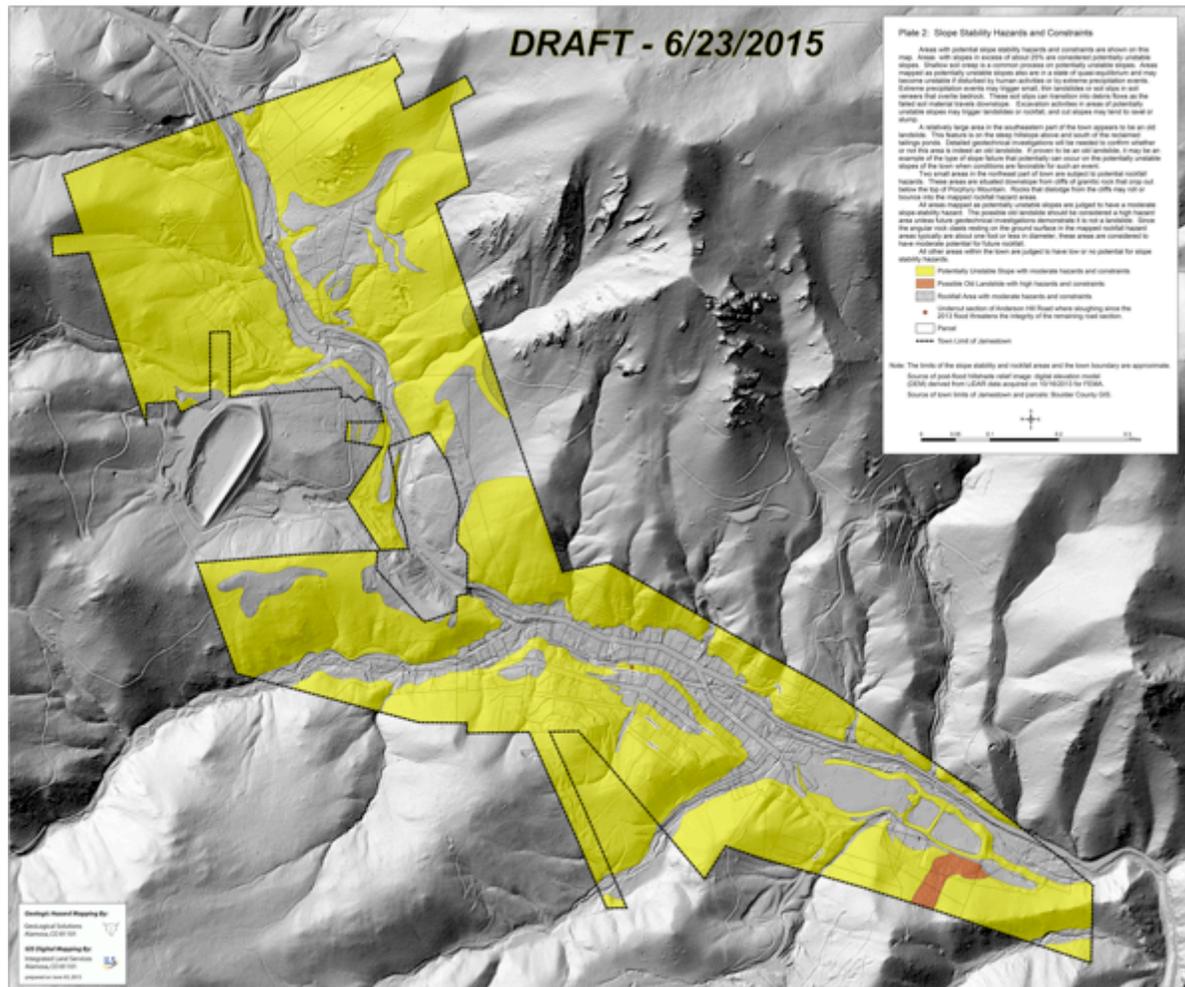
Moderate hazard debris-flow areas are denoted by the **yellow color**.

Existing mitigation structures may reduce debris-flow hazards, especially during small events, but they may not completely eliminate the hazard during large events. It potentially may modify hazard areas during large events.

Debris hazards outside the study area will be noted in the report.

Geologic Hazards

Slope Stability Hazards and Constraints



One landslide was identified within town.

Areas with slopes in excess of about 25% are considered potentially unstable slopes.

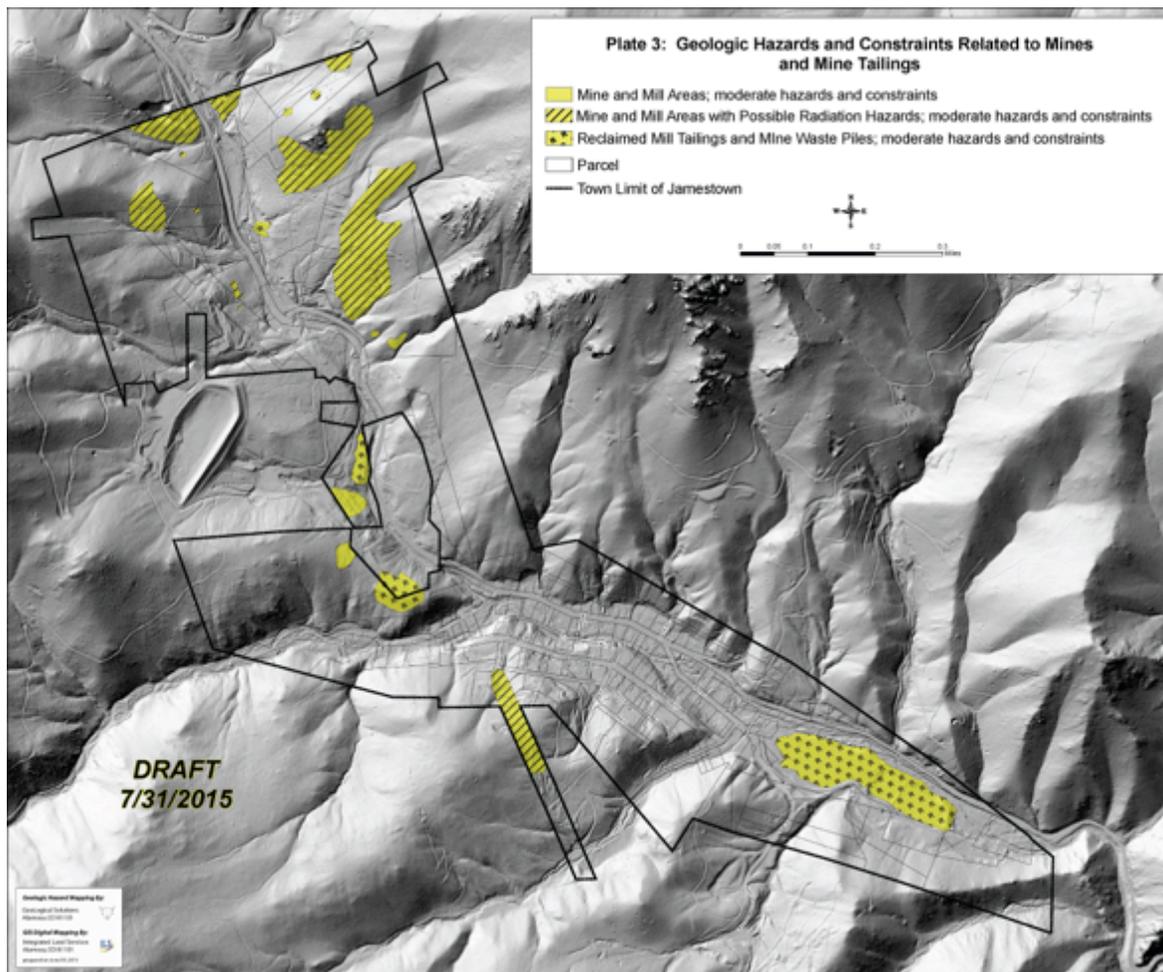
Shallow soil creep is a common process on potentially unstable slopes.

Two small areas in the north part of town are subject to rockfall hazards.

Rock avalanche deposits exist upslope from town

Geologic Hazards

Geologic Hazards and Constraints Related to Mines and Mill Tailings



Hazardous mine opening may exist in these areas.

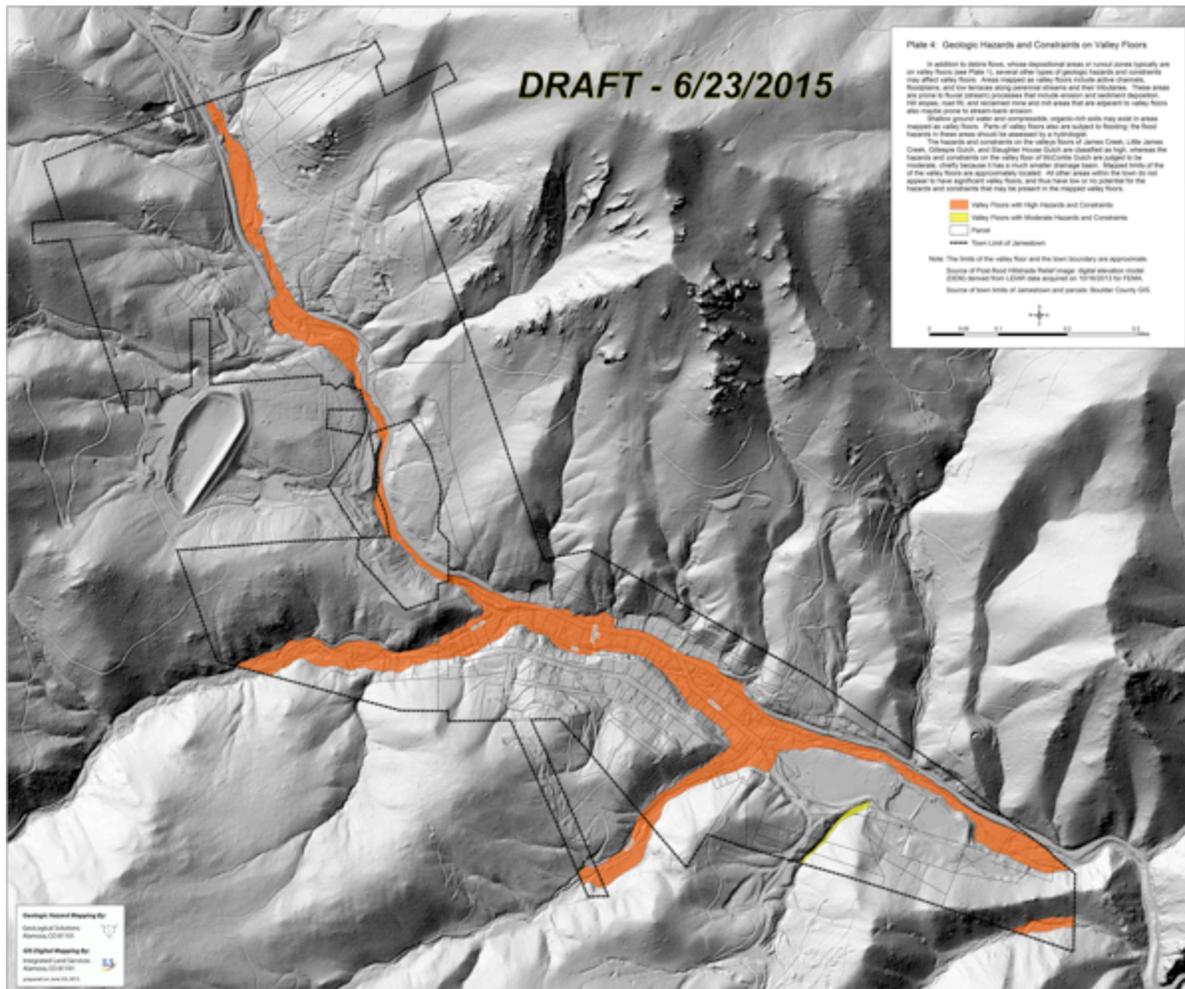
Shallow underground workings pose potential subsidence hazards.

Loose, unconsolidated material in mine and mill areas may be unsuitable for foundations.

Rocks in some areas are known to contain uranium and other radioactive minerals that may pose radiation hazards.

Geologic Hazards

Geologic Hazards and Constraints on Valley Floors

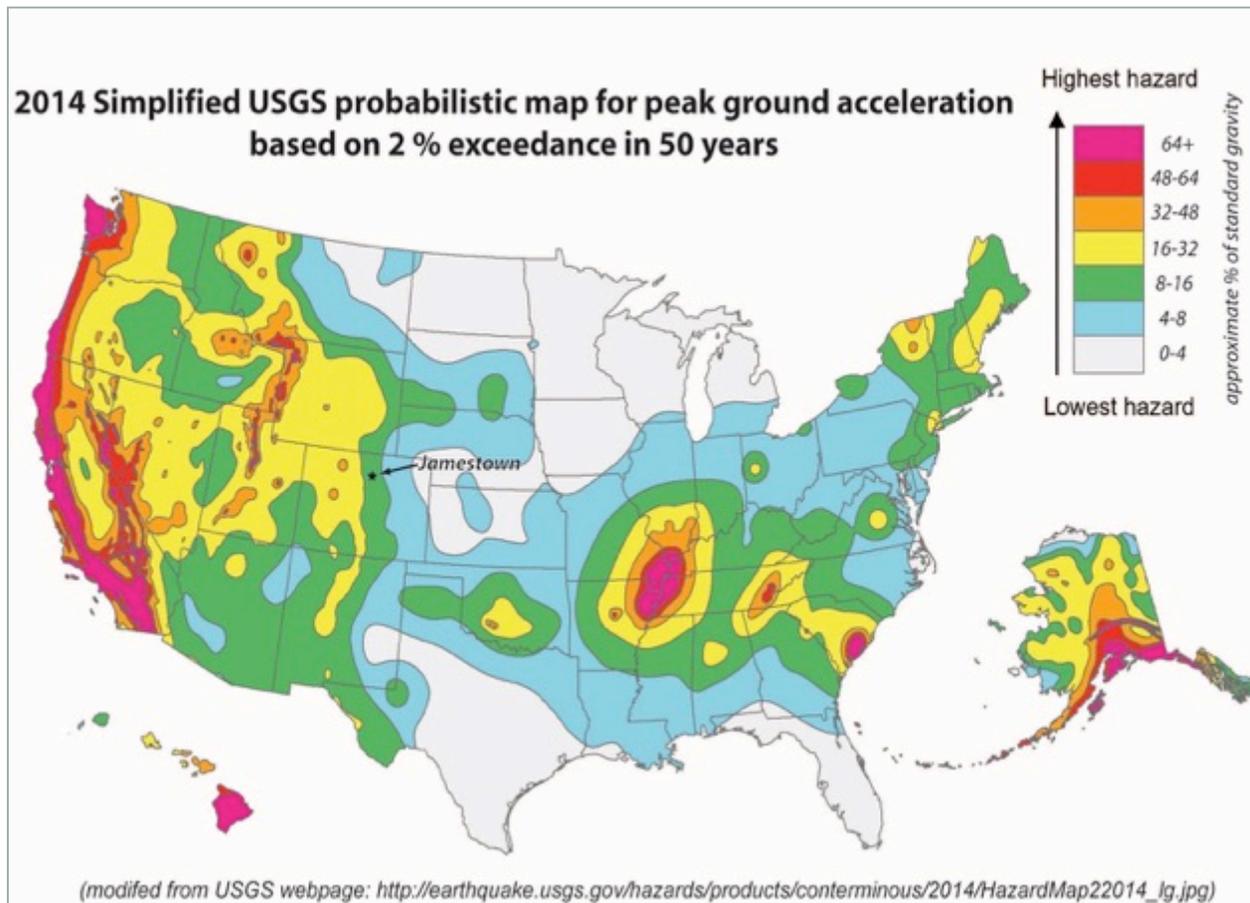


These areas are prone to fluvial (stream) processes that include erosion and sediment deposition and may contain shallow ground water or compactible soils.

Some areas adjacent to the valley floors, including roads, also may be subject to stream bank erosion.

Geologic Hazards

Seismic Hazard



Jamestown's seismic hazard is moderate to low.

Colorado's largest historic earthquake occurred in 1882 near Estes Park.

A similar event could occur near Jamestown.

Geologic Hazards

Initial Observations:

Jamestown has a moderate to high vulnerability related to Geological Hazards.

A few observations from the Study to date:

- Jamestown's overall vulnerability to geologic hazards is moderate.
- Debris flows pose the greatest hazard to the town.
- Much of the town is on potentially unstable slopes that when disturbed may become unstable.
- Relatively small areas have experienced rockfall or landsliding
- If a rock avalanche larger than the old one the southwest side of Porphyry Mountain happened in the future, it could be very hazardous to Jamestown.
- Physical and environmental hazards may exist within the mine and mill areas.
- In addition to flooding, valley floors have erosion and deposition hazards, shallow groundwater, and perhaps compactible soils.
- Earthquake hazard is moderate to low based on USGS seismic hazards map. But if a future earthquake similar to the 1882 earthquake occurs near town it could cause significant damage.

Next Steps

Next Community Meeting:

- Land Use and Housing Study Initial Observations
- Sept. 1st, 6 pm here at the Merc

Board of Trustees Presentations:

- Draft HIRA Report: Sept. 8th
- Draft Land Use and Housing: Sept. 21st

Community Presentation:

- HIRA, Land Use and Housing Community Presentation: Oct. 13th
@ Town Hall

Final Report:

- Board of Trustees Presentation: Nov. 2nd
- Final Report: Nov. 16th

This presentation will be posted on the Town's website within 24 hours, and may be viewed and/or downloaded at that time.



Questions and Answers

Thank you!

Three Questionnaires:

A: JT Hazard Investigation

B: Land Use and Housing

C: Land Use and Housing Background(Confidential)

A

JAMESTOWN COLORADO
JAMESTOWN HAZARD SURVEY

The purpose of this survey is to better inform the planning team as to personal experiences as people action items are prepared for public input. More about this study, please visit: <http://jamestownco.org/hazard-risk-and-land-use-study/>

Street Address (Optional): _____

Your Name (Optional): _____

-Hazards in Your Neighborhood-
Which of the following Natural Disasters do you feel are a threat to your immediate neighborhood?

Wildfire
 Flood
 Drainage/Debris Flow
 Landslide/Slope Failure
 Wind Damage
 Other: _____

In the chart below, please list any personal experiences you have had or observed in your neighborhood related to natural hazard that you be addressed in this study.

Year	Location	Natural Hazard Event	Frequency of Event	Known?

Debris Flow - a moving mass of loose mud, soil, rock, water, sandy debris and air that travels down a slope and creates a muddy
Landslide/Slope Failure - the sliding down of a mass of earth or rock from a mountain or cliff

Jamestown Hazard Investigation & Risk Assessment, Land Use and Housing Analysis Study

B

JAMESTOWN COLORADO
JAMESTOWN HOUSING & LAND USE
QUESTIONNAIRE

The purpose of this questionnaire is to better inform the planning team as to community preferences around housing and land use as possible action items are prepared for public input. More about this study, please visit: <http://jamestownco.org/hazard-risk-and-land-use-study/>

1. What neighborhood do you live in? The Land Use and Housing Inventory (see annex 2.0362) - include all of 17 incidents - list identified neighborhoods as part of their work. Please use the attached map to determine your neighborhood number.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

2. How long have you lived in Jamestown? _____ years

3. Which of these best describes your household:
 Single without children
 Single with children
 Single parent with children
 Two adults
 Includes at least one person who is considered to be
 Other _____

4. Check the number of people of the following ages living in your house (including yourself):

Under 5	5-12	13-17	18-24	25-34	35-44	45-54	55-64	65-74	75+

5. For your household, is the size of your residence:
 One night
 Two night
 Three night

6. Are you considering downgrading into a smaller house or adding on to your house (within 5 years)?
 Yes
 No

Jamestown Hazard Investigation & Risk Assessment, Land Use and Housing Analysis Study

C

JAMESTOWN COLORADO
JAMESTOWN HOUSING & LAND USE
QUESTIONNAIRE: BACKGROUND INFO

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

2. Before the flood, was your household member:
 Employed full or part time
 Unemployed
 Retired
 Student

3. In your household, are you:
 Employed full or part time
 Unemployed
 Retired
 Student

4. What is the current condition of your house in Jamestown?
 Excellent
 Good
 Fair
 Poor
 Very poor

5. Are you planning to considering a move to a different location (outside of Jamestown) within the next 5 years?
 Yes
 No

Jamestown Hazard Investigation & Risk Assessment, Land Use and Housing Analysis Study

Thank you!

Instructions:

- Please complete **one survey** per Household.
- Please answer carefully. Your responses are very important to the success of the Hazard Investigation and Risk Assessment Study.
- Please inform your neighbors who could not attend tonight's Community Meeting that the Survey is available electronically on the Town website. Hard copies are also available in the Town Hall, Merc and the Post Office.
- Please return the survey by **Friday, August 14** to the Town Hall where a box will be provided.

Thank you for your participation!



Have a good night.

Please be careful going home.

Thank you again.