



COLORADO
Water Conservation Board
Department of Natural Resources

CHAMP Flood Study

Loveland Area/Big Thompson River Public Open House

*Public Works Administration
2525 W. 1st Street, Loveland, CO
Upstairs Conference Rooms
November 14, 2018, 5:00 PM*



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Introduction



communities
FEMA and
operating in the
communities
Flood
to identify a
Program
communicate
keep risk
changed
tion up to
communities



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Why is this important?

- Updated Risk Information
 - Flood events can have a devastating effect
 - Mapped flood risk is not static
- Community Participates in National Flood Insurance Program
 - Building requirements
 - Insurance requirements



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Outline



Introduction to NFIP and
Flood Hazard Mapping



Roles and Methods



Results, Timeline and
Resources



Acknowledgements &
Discussion



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What is the NFIP?



Voluntary Program

Allows homeowners to buy insurance based on Zones and be eligible for federal assistance



Federal Program

- Overseen by FEMA and Partners
- Managed by Communities
- Enforced by lenders

Engineers determine risk

- Used to determine requirements
- Allows discount for less risk



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What are Flood Insurance Rate Maps?

Show Flood Risk

-  1% Annual Chance Flood
-  0.2% Annual Chance Flood

Used to rate flood insurance

Available Online:

- FEMA Map Service Center (MSC)
- FEMA National Flood Hazard Layer (NFHL)



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Roles

Hazard Mapping

Community Officials



- Administer NFIP
- Communicate Risk and Changes to it
- Manage Construction
- Flood Risk Adaptation
- Enforcement of Regulations
- Identification of changed risk

State (CWCB)



- Supporting Funding
- Risk Identification Updates
- Community Assistance
- FEMA Partner

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- Funding for Study
- Including new study on FIRMs
- NFIP

Private Stakeholders



- Work with community officials to update information



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Study Extents



CHAMP Stream Mileage

Region	Enhanced	Base	Total
SV	178	86	264
BT	111	89	200
Platte	182	38	219
Total	471	212	683

Study South Platte River east to the Nebraska-Colorado State line including 145.8 miles of enhanced and 37.5 miles of base level study. See inset map.

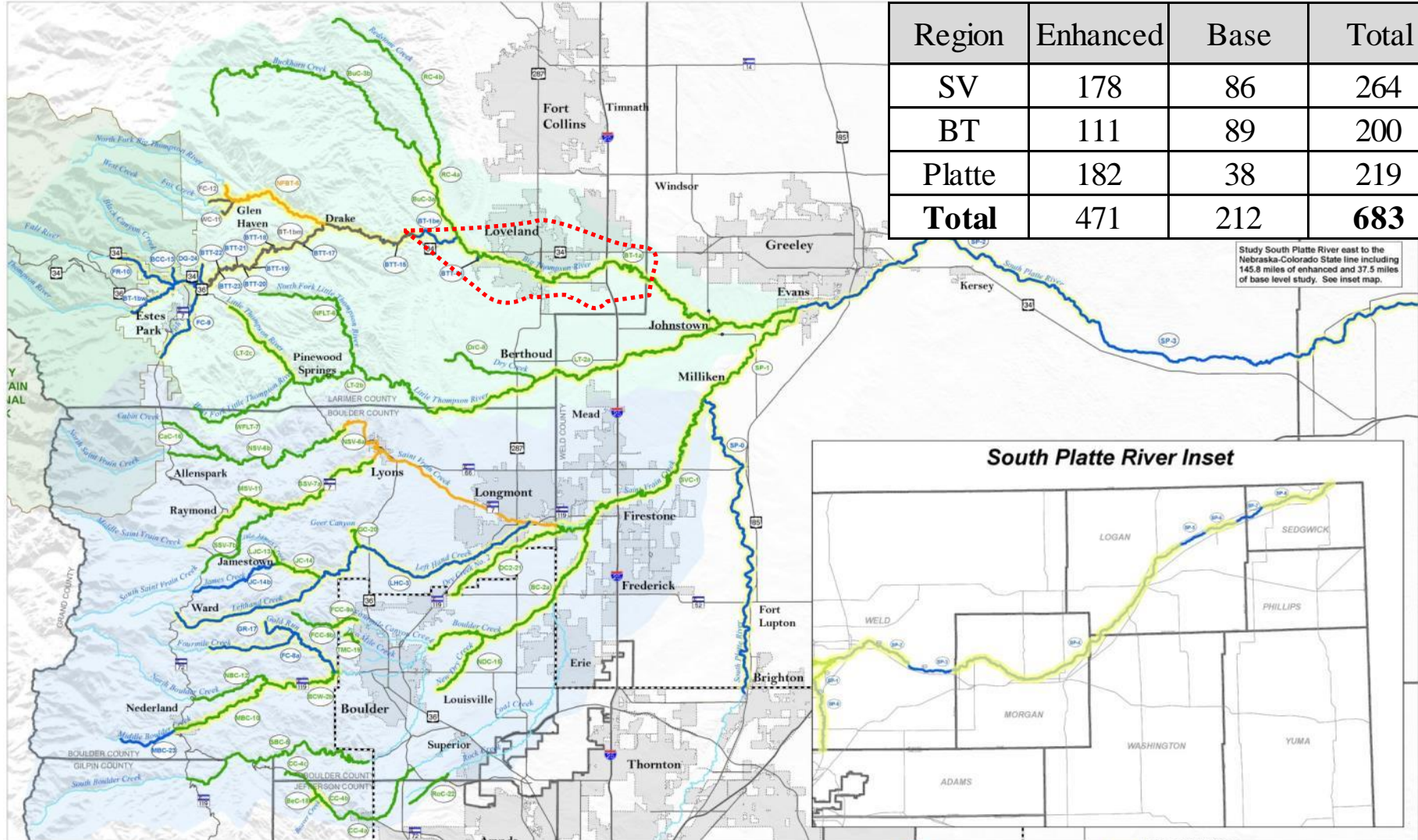


Figure 1: Floodplain Mapping Evaluation Level of Study
 COLORADO HAZARD MAPPING PROGRAM PHASE 1 and 2

Do Results Depict Actual Flooding?

- Actual floods can see different results every time
 - Dam breaks
 - Bridge and culvert clogging
 - Debris
- Models are based on conditions from topographic data and survey



Study Details



Terrain



- Virtual Land Surface created from light detection and ranging (LiDAR)
- Represents a fixed point in time
- Date Collected: USACE 2014, CWCB 2016
- Date Approved: 3/16/17



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Study Details



Terrain



Survey



- Enhanced models (Zone AE)
- Surface info not in topo data (i.e. culverts and bridges, submerged channel)
- Date Collected: Fall 2015
- Date Approved: Summer 2016
- Survey locations online



Study Details



Terrain



Survey



Hydrology



- How much water? → Determined from rainfall, infiltration
- Not mapping 2013 flood
- Info from 2013 flood and others used along with historic rainfall, gage data, and land cover info completed under a separate effort
 - Some discharges increased, some decreased.
- CDOT/CWCB Completed April 2016
- Included in CWCB Hydrology (Approved: 8/6/16)
- Flows on CWCB interactive map



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Study Details



Terrain



Survey



Hydrology



Hydraulics



- Where water goes
- Used inputs to calculate water surface elevations (WSEL)
- 1D Models: Uses cross sections at specific interval
- 2D Models: Uses grid
- Submitted: Big T. 5/10/18
- Approved: Big T. 9/4/18



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Study Details



Terrain



Survey



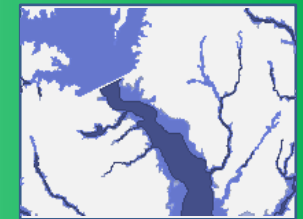
Hydrology



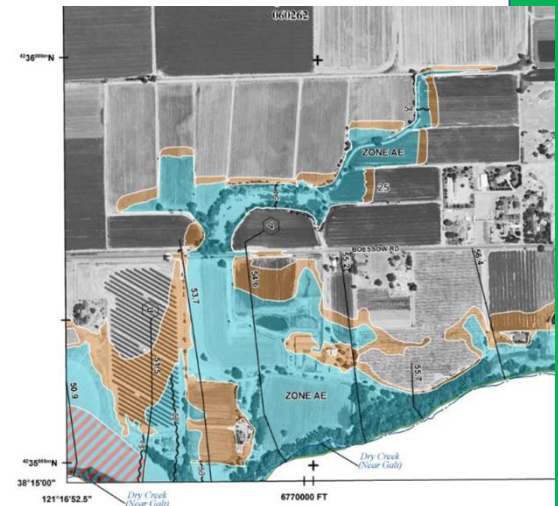
Hydraulics



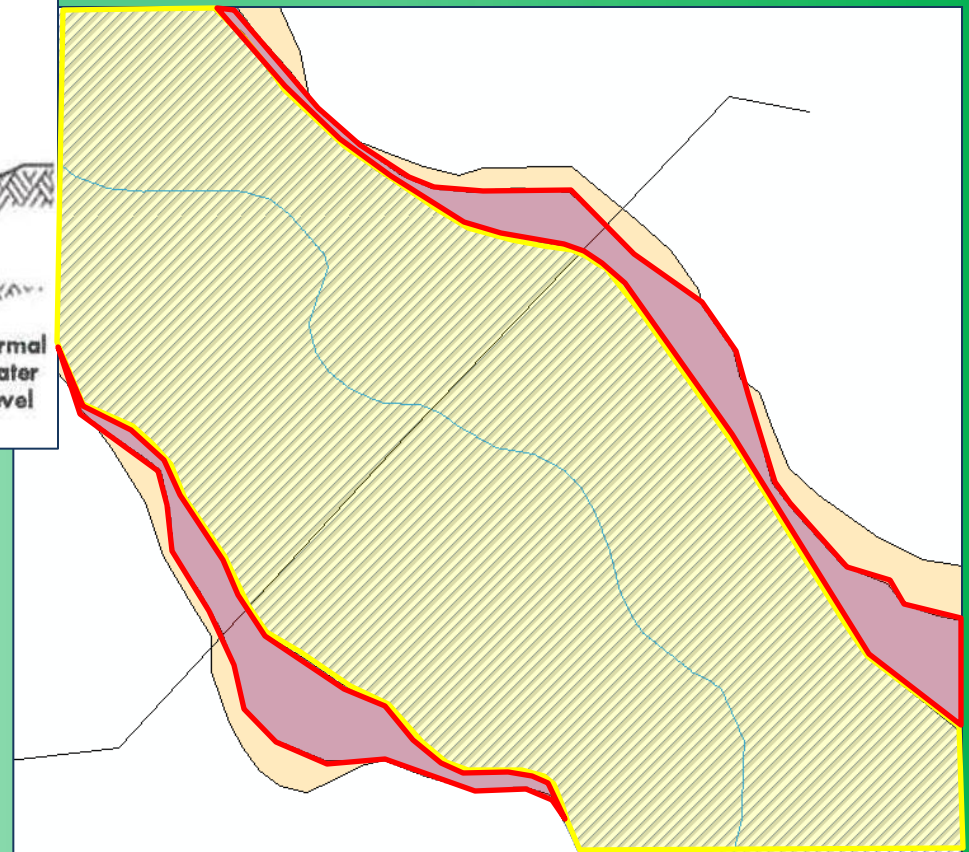
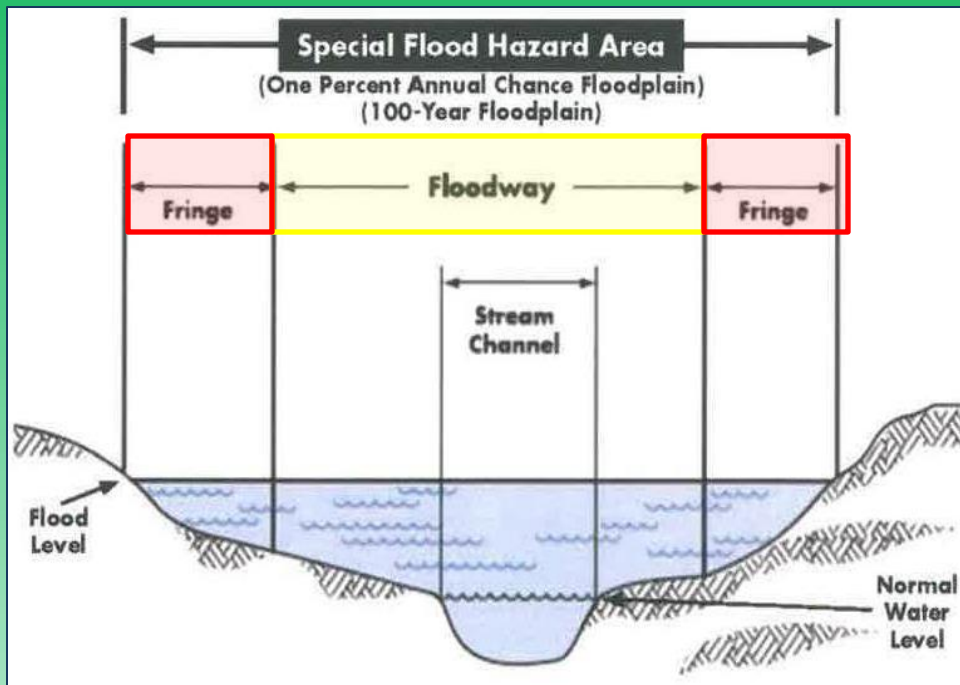
Floodplains



- Results are mapped to easily understand
- Description of results
 - Zone A & AE
 - Cross Sections
 - Base Flood Elevation (BFE)
 - Floodway
- Submitted/Approved: Pending Floodways



Floodways



- Implications of Floodway vs. Floodplain
- Loveland Floodway still being developed



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So... Am I at risk of flooding?

- Line on a map
- Best engineering data and judgment used
- Scientific process allows for changes
 - New information
 - Changed information

BUT

- You may still be at risk of flooding



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Can results be changed?

- Technical data
 - Survey or topographic data
 - New analysis
- Mechanism
 - Appeals on preliminary maps
 - Letter of Map Revision (LOMR) later
 - Letter of Map Amendment later
 - Will need elevation certificate



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What is the Confidence of Results?

- Survey accuracy – Within 0.16 feet @ 95% confidence level.
- Topographic data accuracy – Within 2.3 feet @ 95% confidence level
- Hydrology accuracy –
 - Varies based on input data (precipitation, etc.) and model
 - 1%+ recurrence interval
- Hydraulic accuracy – Product of input data
- Reviews
 - Multiple engineers
 - Community leaders
 - FEMA contractors



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Upcoming Project Milestones

Community
Leader
Reviews
Early 2018



FEMA
Reviews
Winter
2018/19



Preliminary
FIRMs
Released
Fall 2019



Appeal
Period and
Resolution
Spring 2020



Effective
FIRMs
Released
End 2020



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Homeowner's Insurance

- Where flood risk changed
 - Requirements aren't new
 - Risk just updated
 - Increased in some areas, decreased in others
- FEMA requires for federally backed mortgages in Special Flood Hazard Areas (SFHAs)
 - Zone A, AE, AH, AO
- Required for federal assistance after floods.
- New Zones go into effect with effective FIRMs, not before
- Grandfather information
- Banks can require anywhere
- Contact and main resources later



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Development Implications

- Changes Since Last FIRM (CSLF)
 - Requirements aren't new
 - Risk just updated
 - Increased in some areas, decreased in others
- Community ordinance specifies what is required.
- Different requirement in a floodway and a non-floodway.
- Community may adopt as best available data
 - Use the most restrictive of old and new until final
- Contact floodplain Administrator



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Other Resources



- Contacts (Shown on last slide)
 - Local Floodplain Administrator
 - State Study Leads
 - Flood Insurance Representative
 - FEMA Area Representative
- Flood Smart
 - www.floodsmart.gov
 - (888) 379-9531
- CWCB Flood Page - cwc.state.co.us/water-management/flood/Pages/main.asp
- Website (next)



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Website - Interactive Maps

Colorado Water Conservation Board



Colorado Hazard Mapping & Risk MAP Portal

Search Portal

PROJECT HOME

RESOURCES

INTERACTIVE MAP

EXTERNAL RESOURCES

HELP/FEEDBACK

SIGN IN

Map Floodplain Mapping

Layers Documents

UDFCD Boundary

Year 2 Surveyed Locations

Year 1 Surveyed Locations

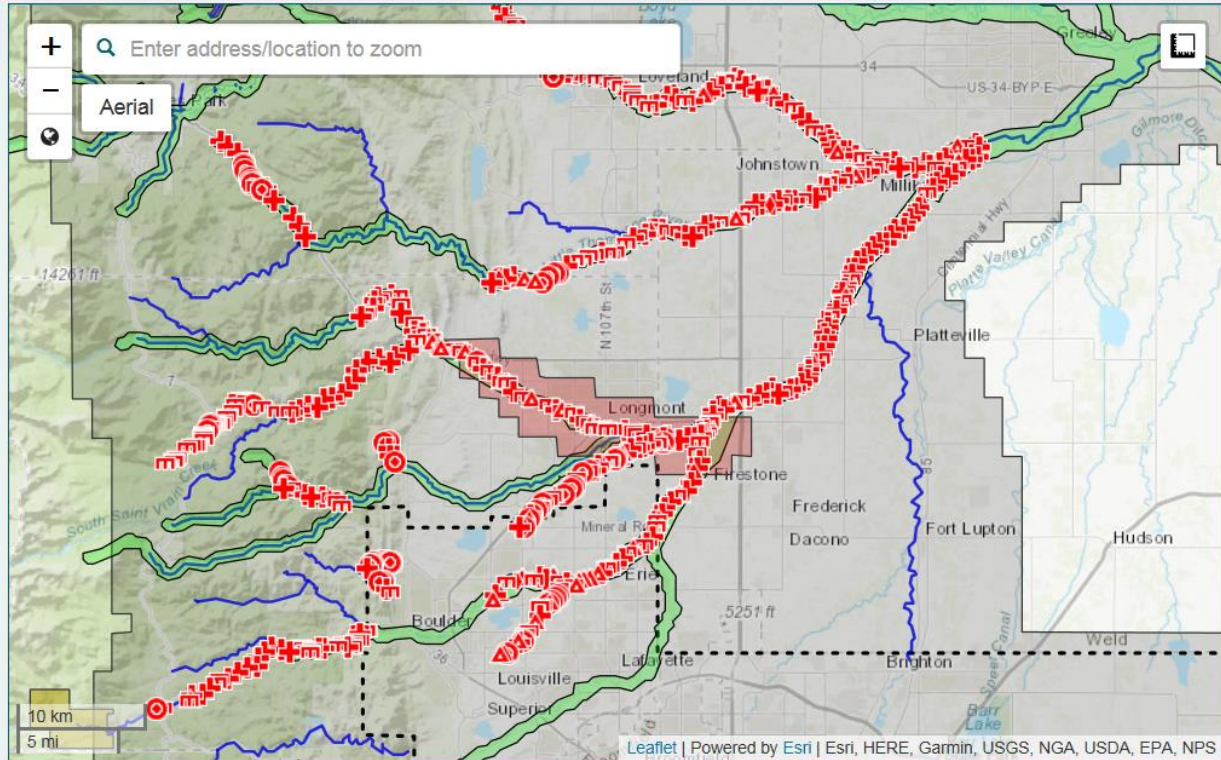
- Structure
- Bridge
- Cross Section
- Culvert
- Drop/Divert/Dam
- Not for Survey
- Other Feature

Hydrology Flow Changes

Project Counties

Lidar Coverage

- 2012
- 2013 USGS
- 2014 USACE
- Longmont
- Glen Haven



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For web related issues contact **AECOM**



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Website Resources



Flyers, FAQs, Fact Sheets, Links

Frequently Asked Questions Portal change ▾

If you have a question not listed here, please [contact us](#).

Q: Is there a grant program that assists after a Federally Declared Disaster?

Yes, the purpose of the Hazard Mitigation Grant Program (HMGP) program is to help communities implement hazard mitigation measures from natural hazards.

Q: The CWCB supports watershed planning as well as projects designed to restore and protect watersheds. How is this accomplished?

The CWCB partners with numerous organizations to plan and undertake multi-objective projects designed to reduce flood hazards, and communication and prioritization are essential components of the CWCB's efforts. For more information on watershed protection, [click here](#).

Q: Are there any grants available now?

Pre-Disaster Mitigation grants provide funds on an annual basis for hazard mitigation planning and the implementation of mitigation projects before actual disaster declarations.

Flood Mitigation Assistance grants provide funds on an annual basis so that measures can be taken to reduce or eliminate risk of flooding.

Other grants can be found by going to [grants.gov](#).

The [Hazard Mitigation Assistance Home Page](#) can also help with additional information related to Hazard Mitigation assistance.

Q: Where can I get more information regarding flood insurance, grants, FEMA or programs and other resources?

The [CWCB Flood page](#) provides information on grants, local flood issues, and links to information on flood insurance.

Generic FEMA fact sheets page: <https://www.fema.gov/fact-sheets>

Fact sheet (generic) on the NFIP: https://www.fema.gov/pdf/media/factsheets/2011/mit_natl_flood_ins.pdf

Fact sheet (generic) on Mitigation Planning: https://www.fema.gov/pdf/media/factsheets/2011/mit_state_local_plan.pdf

External Resources Project Documents Floodplain Management

Search external resources

Title ▲
Colorado Flood Decision Support System
Colorado Flood Threat Bulletin
CWCB Colorado Risk MAP
CWCB Floodplain Management Page
CWCB Website
FEMA Fact Sheets
FEMA Flood Map Service Center
Flood Smart
Mitigation Planning Fact Sheet
NFIP Fact Sheet
Planning for Hazards: Land Use Solutions for Colorado

Search documents

Title	Date ▾
Template Flood Hazard Community Notification Letter	09/02/2016
CHAMP Survey TSDN - St Vrain	08/22/2016
CHAMP Survey TSDN - Big Thompson	08/22/2016
Fact Sheet on Flood Risk	08/15/2016
July 2016 CHAMP Newsletter	07/22/2016
Q3 Meeting Minutes	06/08/2016
Risk MAP vs CHAMP Fact Sheet	05/24/2016
Master St. Vrain Basin Map	05/24/2016
Master Little Thompson Basin Map	05/24/2016
Master Boulder Coal Creek Basin Map	05/24/2016
Master Big Thompson Basin Map	05/24/2016
Project Schedule and Study Incorporation Flow Chart	04/13/2016
April 2016 CHAMP Newsletter	04/08/2016
Proposed Hydrology Methods Map & Decision Tree	03/22/2016
Selected Hydrology Exhibit - St Vrain HUC-8	02/04/2016
Selected Hydrology Exhibit - Big Thompson HUC-8	02/04/2016

Communication & Outreach

- General study information fact sheet available
- General NFIP/Insurance fact sheet available
- This presentation available

Twitter Feeds Click a feed name to view the feed

CWCB	Tweets by @CWCB_DNR
Colorado FloodDSS	<p> COWaterConservBoard Retweeted</p> <p> ColoradoUnited @CoUnited Part of the North Fork Restoration, Big Thompson is complete! bit.ly/2cm8w95 @WLRV @CWCB_DNR @COResilient</p> 
CO Flood Updates	
CO Drought Response	
CO Emergency Management	
CO Department of Transportation	
CO Dept of Local Affairs	
ready.gov	
FEMA Region 8	



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CHAMP News!

This is the third Quarterly Newsletter for the Colorado Hazard Mapping Program (CHAMP), which provides updates following the quarterly meetings. Work on Phase I of CHAMP continues!

CWCB is adding additional stream miles to the CHAMP flood hazard mapping project by including the South Platte River, which will be studied from the Weld/Adams county boundary to the Nebraska state line.

Find the latest information on the project website: <http://coloradohazardmapping.com/hazardmapping/phaseOneFloodplainMapping>.

See you at the next Quarterly Meeting in September 2016!

For more information, please visit www.coloradohazardmapping.com!

Project Status Update

The CHAMP team is pressing forward with hydraulic analysis in the St. Vrain and Big Thompson HUC-8 watersheds. This summer, additional field survey will be collected in those watersheds and along the South Platte. Community representatives should have received a schedule for this survey. Please contact the project team if more information is needed.

This fall the project team expects to complete the LIDAR acquisition in Loveland as well as hydraulic analysis and floodplain mapping on the first round of streams. See the streams on the project map [here](#). Hydrology and the first round of survey data development are complete and undergoing FEMA quality reviews.

In addition to the flood hazard mapping project, CHAMP includes debris flow and erosion hazard mapping projects. Updates on these efforts were included in the third quarterly meeting on May 25, 2016. Presentation slides and materials from this meeting can be downloaded [here](#).

July 2016

CWCB News

CONGRATS! Congratulations to Stephanie DiBettito on her new role as the Community Assistance Program Coordinator, taking over for Jamie Prochno, who has taken a position with the US Army Corps of Engineers in Omaha, NE. CWCB thanks Jamie for her years of service as the State CAP/NFIP Coordinator and wishes her luck in her new position with the Corps.

CRS WEBSITE. CWCB is pleased to announce that the Community Rating System (CRS) Website for Colorado Communities is now live! The CRS website is a "one-stop shop" for Colorado communities to access information and resources on the CRS. Check out the site today!
<http://coloradohazardmapping.com/crs#/home>

CONFERENCE PRESENTATIONS. Presentations on CHAMP and CWCB's other floodplain mapping projects were given at the Association of State Floodplain Managers (ASFPM) Annual Conference and are scheduled for the Colorado Association of Stormwater and Floodplain Managers (CASFM) Annual Conference.

- ASFPM (June 20-24, 2016):
 - Concurrent Session on LIDAR vs. IFSAR First Order Approximation Floodplain Mapping
 - Concurrent Session on Regional Approaches to Forecasting Flood Risk
 - Concurrent session on CWCB's Erosion/Fluvial Hazard Mapping efforts
- CASFM (September 13-16, 2016):
 - CHAMP – Creating Reliable, Post Flood Data for Colorado's Future, Thursday, September 15, 2016 at 2 PM.

Conclusion



- Please Review Information and ask questions
- Data will be used for Flood Insurance Rate Maps
- Floodplains are not “Effective” until FIRMs are released
- Results show risk!



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Questions?

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