Creek Recovery and Floodplain Management

Boulder County Planning Commission
Flood Response and Recovery Programs

Emergency Response

Short Term Recovery

Long-Term Recovery
Program Updates

- Debris Removal and High Hazard Mitigation
- Comprehensive Creek Planning Initiative
- Floodplain Management
Comprehensive Creek Planning Initiative (CCP)

SEPTEMBER 17, 2014
PROJECT UPDATE
BOULDER COUNTY PLANNING COMMISSION
Creek Planning

- Long-Term Creek Recovery
- Watershed Master Plans for major flood-damages drainages throughout county
- To identify creek restoration, flood control, and other resiliency and recovery projects, to position for funding for project implementation
Boulder County Planning Activities

Little Thompson River Master Plan
St. Vrain Creek Master Plan
Left Hand Creek Master Plan
Boulder Creek
  - Fourmile Creek Master Plan
  - Boulder Creek, city of Boulder to confluence (UDFCD)
South Boulder Creek
  - Major drainageway planning for South Boulder Creek flood mitigation (UDFCD)*
Coal Creek & Rock Creek
  - Upper Coal Creek Master Plan
  - Coal Creek/Rock Creek, Major Drainageway and Planning Study and Flood Hazard Area Delineation (UDFCD)*

*Studies begun before the September 2013 flood
## Boulder County Master Plans

<table>
<thead>
<tr>
<th>Watershed Characteristics</th>
<th>St. Vrain Creek</th>
<th>Left Hand Creek</th>
<th>Four Mile Creek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large watershed, several critical drainages, mountains to plains, rural town, one urban area, public lands</td>
<td>Several critical drainages, canyons to plains, mountain towns, rural subdivisions, public lands</td>
<td>Major drainage to Boulder Creek, canyon, historic mountain communities, public lands</td>
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</table>

| Coalition Composition | 8 members, public agencies | 30+ members, public agencies, non-governmental entities, possible expansion | Coordinated with Boulder Creek Coalition, 6 agencies for lower Boulder Creek study, with UDFCD |

| Community Engagement | Large public forums, reach-specific meetings | Neighborhood – level discussions | Outreach to individuals, community leaders |
St Vrain Creek Watershed Master Plan Geographic Study Area

www.BoulderCountyCreekPlan.org
**St. Vrain Watershed Master Plan**

**Plan Status**

- Kick-off community meetings were held in June, 200 participants
- Fieldwork is complete (geomorphic and ecological risk assessment)
- Survey and hydraulic analysis in progress for specific reaches
- Draft alternatives released for review and input
  - Coalition agencies
  - Community meetings
- Draft Master Plan to be available in late October
- Final Master Plan and public meeting in November
St. Vrain Watershed- Ecological Assessment

Legend
- Ecosystem reach delimiter

Overall Ecosystem Score
- 3 - 4.9: Poor
- 5 - 6.9: Fair
- 7 - 8.9: Good
- 9 - 10: Excellent

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St. Vrain Watershed - Historical Channel

**NOTES:**
1. The 2013 stream centerline for the reach upstream of Lyons was based on a 2012 aerial photograph.
2. The aerial photograph displayed in this figure is the 2013 NAF (PRE-FLOOD).
St. Vrain Watershed - Geomorphic Analysis
St. Vrain Watershed - Alternatives

- Includes stream alignment alternatives
- Informed by ecological and risk assessments
- Identify projects associated with each alternative
St. Vrain Watershed Community Meetings

- Four Community Workshops:
  - 9/15- Reaches 1 & 2- Longmont and ECL to Confluence (Weld Co.)
  - 9/18- Reaches 4 & 5- Lyons, Apple Valley, North St. Vrain, South St. Vrain
  - 9/22- Reaches 6 & 7- Raymond/Riverside
  - 9/24- Reach 3- Between Lyons and Longmont

- Meetings will discuss draft alternatives and gather input for final planning recommendations

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Plan Status

- Kick-off community meetings held in July/August, 150 participants
- Field work complete (geomorphic and ecological risk assessments, field interviews)
- Coordination with final road design, public meeting for road design 9/17
- Draft plan and community meetings for feedback in mid October
- Final master plan complete in mid November
Risk Assessments – Geomorphic

6 Different River Styles for the Left Hand Drainage:

1. Headwater
2. Confined Valley with Bedrock-Controlled Floodplain Pockets
3. Confined Valley, No Floodplain
4. Partly confined, wandering
5. Unconfined, Continuous Floodplain
6. Entrenched, Residential Channel
Risk Assessments – Geomorphic

- Geomorphic Condition
  - Criteria to evaluate each reach
  - Good, Fair, Poor

Confined Valley, no floodplain

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<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<tbody>
<tr>
<td></td>
<td>Vertically and laterally Stable</td>
<td>Eroding Banks (fluvial)</td>
<td>Banks destroyed by mass wasting</td>
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<td></td>
<td>Little man-made armor</td>
<td>Degraded riparian veg.</td>
<td>Little riparian veg.</td>
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<tr>
<td></td>
<td>Intact riparian vegetation</td>
<td>Armor (riprap, concrete) present</td>
<td>Banks heavily armored, grouted riprap used</td>
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<td></td>
<td>Structural wood present</td>
<td>in few locations</td>
<td></td>
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<tr>
<td></td>
<td>Well-established bedforms</td>
<td>Large wood in channel, but may</td>
<td>Channel stripped of large wood</td>
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<td>(step-pool sequences with rapid</td>
<td>not be structural</td>
<td></td>
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<tr>
<td></td>
<td>and cascade elements)</td>
<td>Fines present but organized in</td>
<td>High embeddedness</td>
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<tr>
<td></td>
<td></td>
<td>bedforms (moderate embeddedness)</td>
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<tr>
<td></td>
<td></td>
<td>Bedforms present but not stable</td>
<td>Channel bedforms absent</td>
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Left Hand Watershed - Interview Themes

- Reduce sediment transport and deposition
- Remove woody debris
- Provide water for irrigation
- Protect infrastructure and inform design and construction activities
- Improve safety to residents
- Restore aquatic habitat/fisheries and riparian habitat
- Recommend stream channel design
- Protect natural setting/quality of life
- Improving/protecting water quality
Plan Status

- Kick-off community meeting held on 9/3, 60 participants, joint meeting with road project
- Field work in progress (risk analysis, ecological and geomorphic assessments, field interviews)
- Hydraulic modeling in progress with special attention paid to private crossings
- Draft alternatives to be complete by 10/31
- Community meetings to get feedback planned for the week of 11/3
- Final master plan complete by 12/3
Fourmile Creek-Interview Themes

- Protect homes and other key infrastructure
- Inform roadway and private access design and construction activities
- Ensure access to water
- Incorporate impacts from the Fourmile Fire
- Consider abandoned mine impacts
- Protect water quality
- Prevent and/or mitigate mud flows and sediment loading
- Prevent and/or mitigate channel erosion or migration
- Maintain historic aesthetic of communities
- Restore aquatic and riparian habitat
Boulder Creek Master Plan

Plan Status
- Funding agreement developed with UDFCD
- RFP released
- Consultant selected by end of October
What’s Next?

- County plan adoption
  - Parks and Open Space Advisory Board
  - Planning Commission
  - Board of County Commissioners
- Funding applications
- Post-master plan watershed organization
CCP Contacts

WWW.BOUDDERCOUNTYCREEKPLAN.ORG

JULIE MCKAY
PHONE: 720-564-2662
EMAIL: JMCKAY@BOULDERCOUNTY.ORG

STACEY PROCTOR
PHONE: 303-441-1107
EMAIL: SPROCTOR@BOULDERCOUNTY.ORG