



**City of Boulder Open Space Board of Trustees**  
**May 13, 2015**

***Lefthand Canyon Drive-Left Hand Canyon Creek Flood Recovery***  
***Buckingham Park Open Space Disposal***

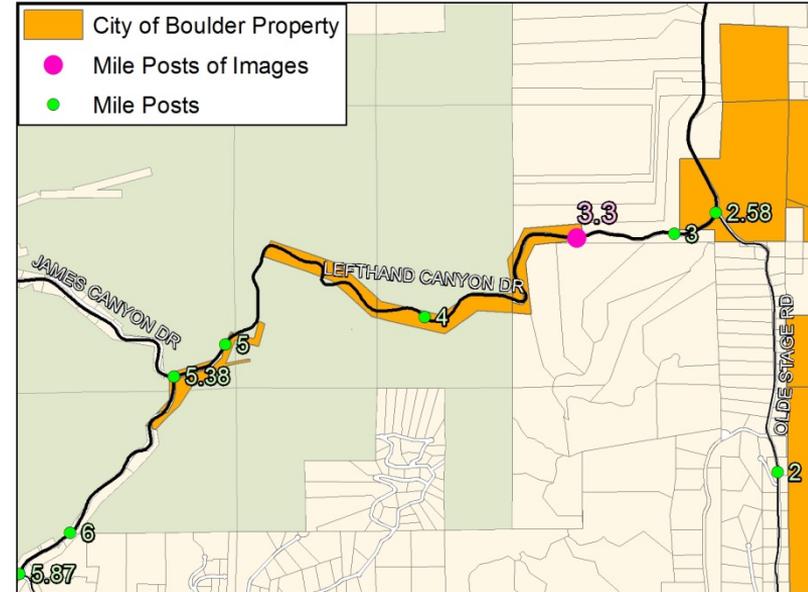
# Lefthand Canyon Drive- Left Hand Canyon Creek



## Boulder County Transportation Department

- **George Gerstle – Boulder County-Director of Transportation**
- **Andy Reed – Boulder County-Project Manager**
- **Julie McKay – Boulder County-Planning Division Manager**
- **Julian Maskeroni – Central Federal Lands (CFL)-Project Manager**

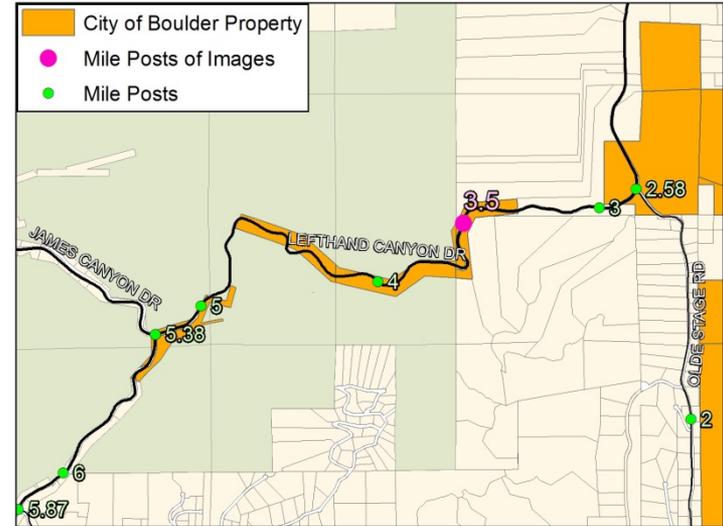
# Lefthand Canyon Drive – Damage

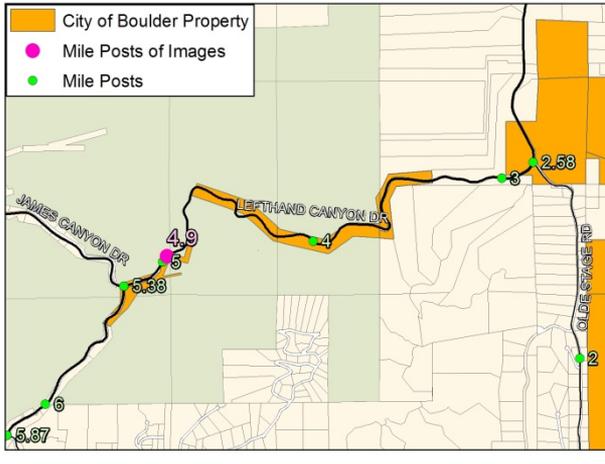


# Lefthand Canyon Drive – Damage

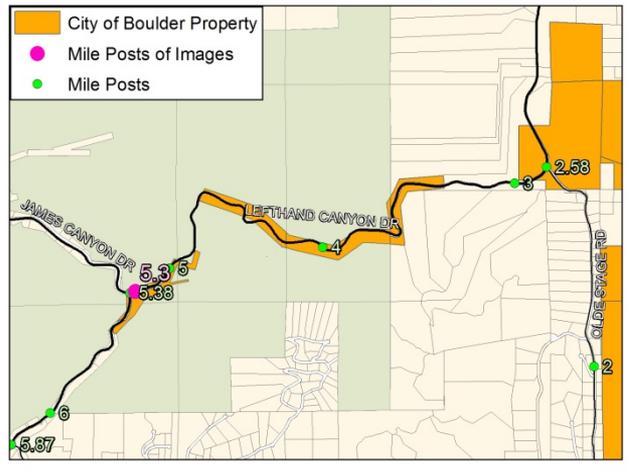


Lefthand Canyon MM 3.5



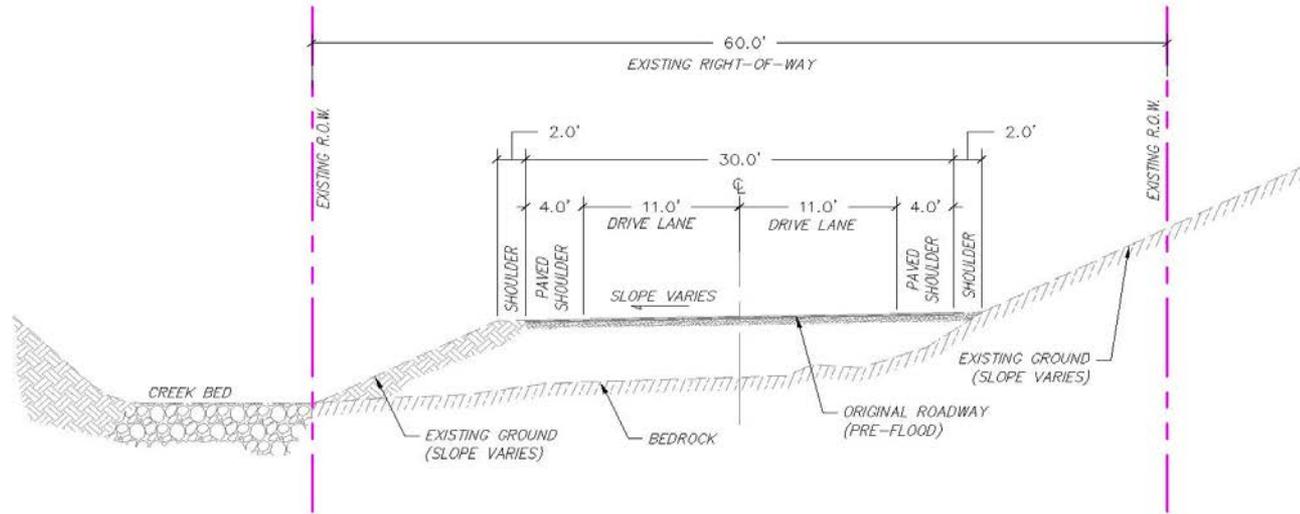


**Lefthand Canyon MM 4.9**



# Lefthand Canyon MM 5.3





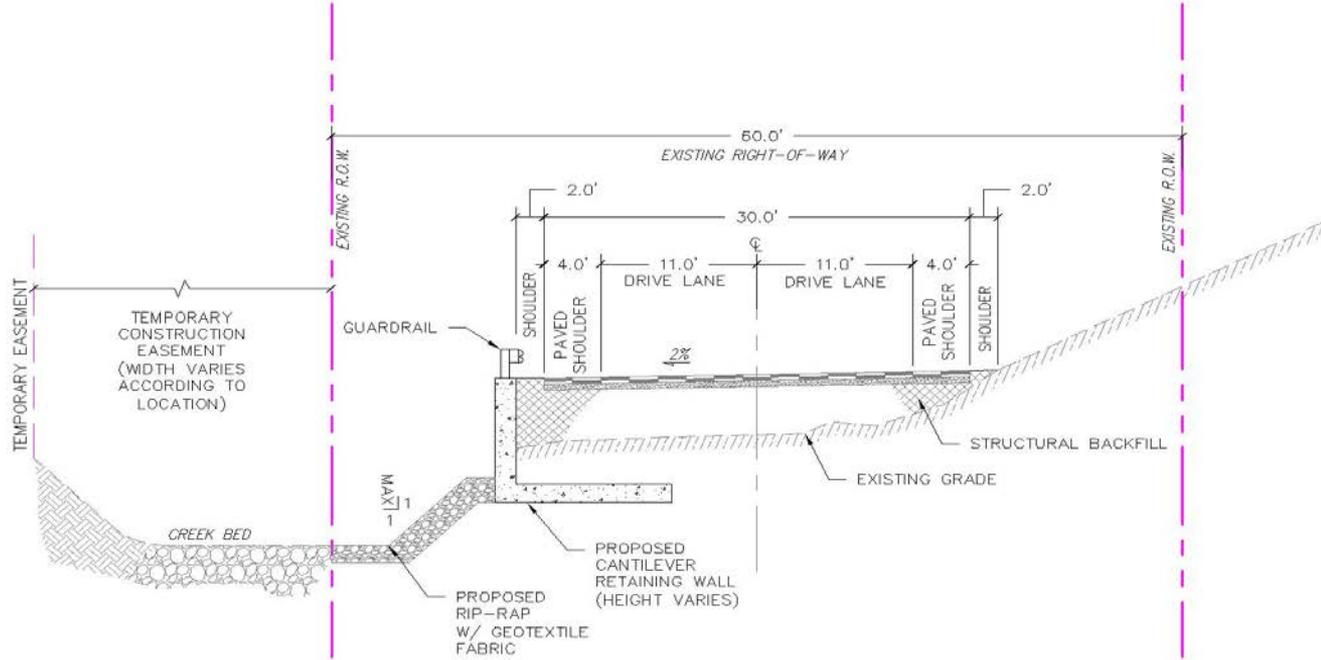
Original Road Section – Pre-Flood

# Lefthand Canyon Dr. – Road Repair Options

---

## **What are the road repair options ?**

- **Option #1 – CDOT/FHWA Repairs**
- **Option #2 – CFL/FHWA Repair and Reconstruct**



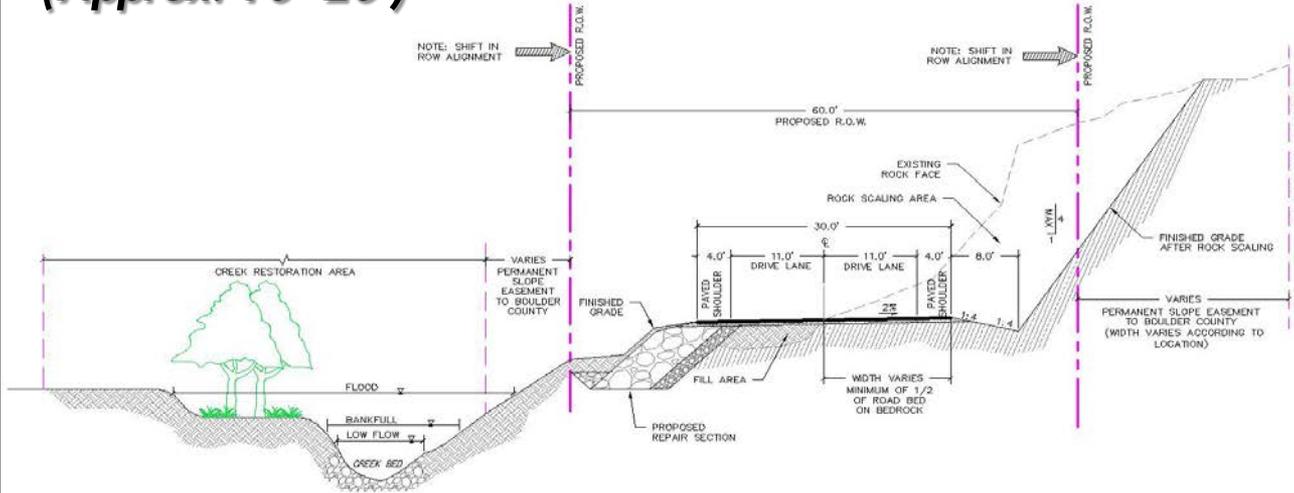
## CDOT/FHWA - Road Repair Section (Option #1)

# Lefthand Canyon Dr.-Road Repair - Option#1

- **CDOT/FHWA REPAIR**

- RETURNS ROADWAY BACK TO PRE-FLOOD CONDITIONS
- TOTAL ROAD REPAIR IS 9 MILES LONG WITH 50 INDIVIDUAL REPAIR AREAS, LENGTH WITHIN THE CITY OF BOULDER OPEN SPACE IS 12,300 FEET OR 2.3 MILES
- REQUIRES CONSTRUCTION OF 9 RETAINING WALLS WHICH ARE 0.43 MILES LONG, 4 OF THE 9 WALLS TOTALING 1474 FEET OR .28 MILES ARE WITHIN THE CITY OF BOULDER OPEN SPACE
- ROAD WILL BE REPAIRED ON ORIGINAL ROAD ALIGNMENT WITH MINIMAL FLOOD RESILIENCY FOR FUTURE FLOODING EVENTS
- WORK ONLY TAKES PLACE IN DAMAGED AREAS – BOTH ROAD AND CREEK (NO COMMITMENT TO CREEK RESTORATION HAS BEEN MADE AT THIS TIME)
- BOX CULVERTS WILL BE REPAIRED AND ADDITIONAL BOX CULVERTS WILL BE ADDED-*IF FUNDING ALLOWS*

**Roadway is shifted up and away from the Creek  
(Approx. 10'-20')**



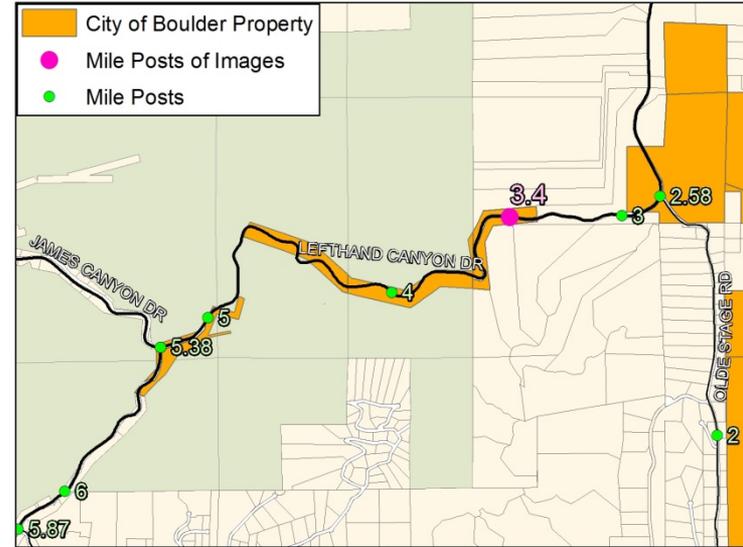
# Lefthand Canyon Dr.-Road Repair-Option #2

- **CFL/FHWA RECONSTRUCTION/REPAIR**

- ELIMINATES THE NEED FOR RETAINING WALLS
- COMPLETE RECONSTRUCTION OF THE ROADWAY AND RESTORATION OF THE CREEK CHANNEL WITHIN CITY OF BOULDER OPEN SPACE AREAS (EXCEPT FOR AREA WITHIN BUCKINGHAM PARK)
- TOTAL LENGTH OF CREEK RESTORATION IS 11,700 FEET OR 2.2 MILES
- PROJECT INCLUDES THE CONSTRUCTION OF 4 NEW BRIDGES (2 OF WHICH ARE WITHIN C.O.B. OPEN SPACE)
- REPLACING BOX CULVERTS WITH CLEAR SPAN BRIDGES REDUCES POTENTIAL FOR DEBRIS BEING TRAPPED IN A FUTURE FLOODING EVENT, AND IMPROVES FISH AND WILDLIFE HABITAT AND CONNECTIVITY
- MOVING THE ROADWAY AWAY FROM THE CREEK AND RESTORING/WIDENING THE CREEK CHANNEL WILL RESTORE THE CREEK ECOSYSTEM CONSISTENT WITH WATERSHED MASTERPLAN

# Lefthand Canyon – Bridge vs Box Culvert

Lefthand Canyon MM 3.4





# Left Hand Creek Watershed Master Plan

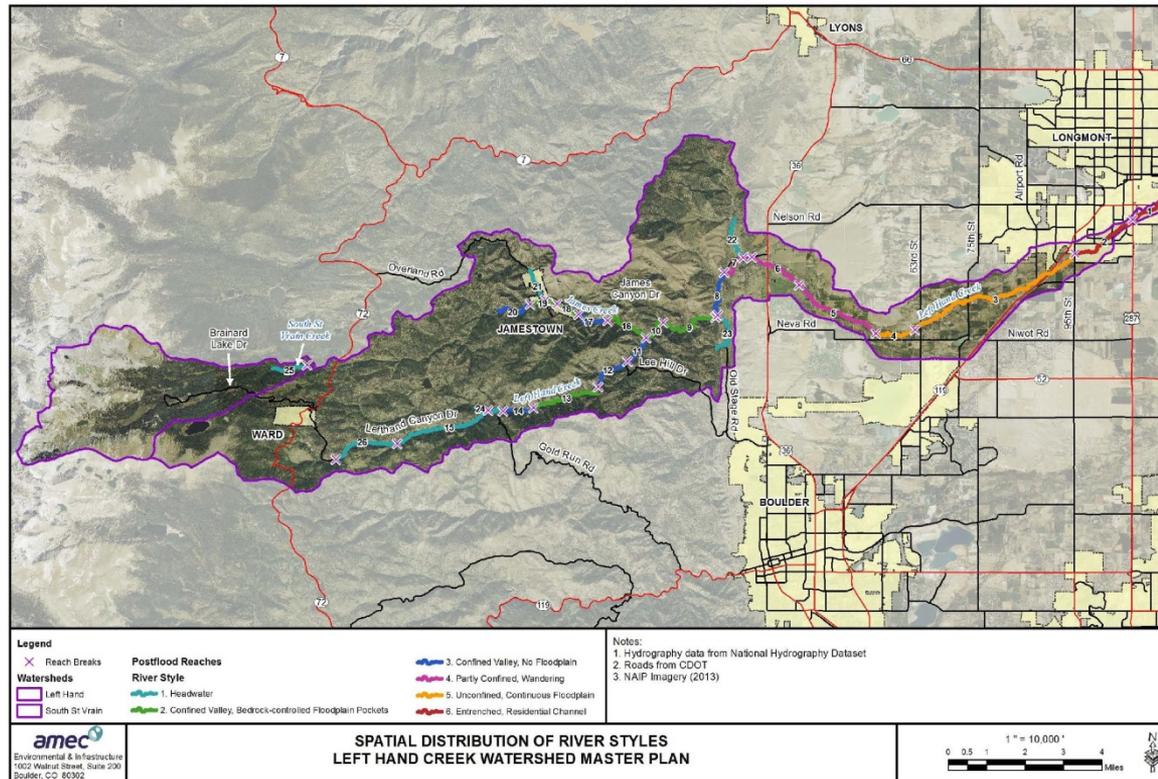
## LEFT HAND CREEK WATERSHED MASTER PLAN



December 9, 2014



# Left Hand Creek Watershed Master Plan



*What is the plan for  
Creek Restoration ?*

# Left Hand Creek Watershed Master Plan



**City of Boulder  
Open Space is within  
reaches 9 & 10  
in the Watershed Master Plan**

## Legend

✕ Reach Breaks

### Watersheds

Left Hand

South St Vrain

### Postflood Reaches

#### River Style

1. Headwater

2. Confined Valley, Bedrock-controlled Floodplain Pockets

3. Confined Valley, No Floodplain

4. Partly Confined, Wandering

5. Unconfined, Continuous Floodplain

6. Entrenched, Residential Channel



# Left Hand Canyon Creek-Restoration

## Confined Valley with Bedrock-Controlled Floodplain Pockets

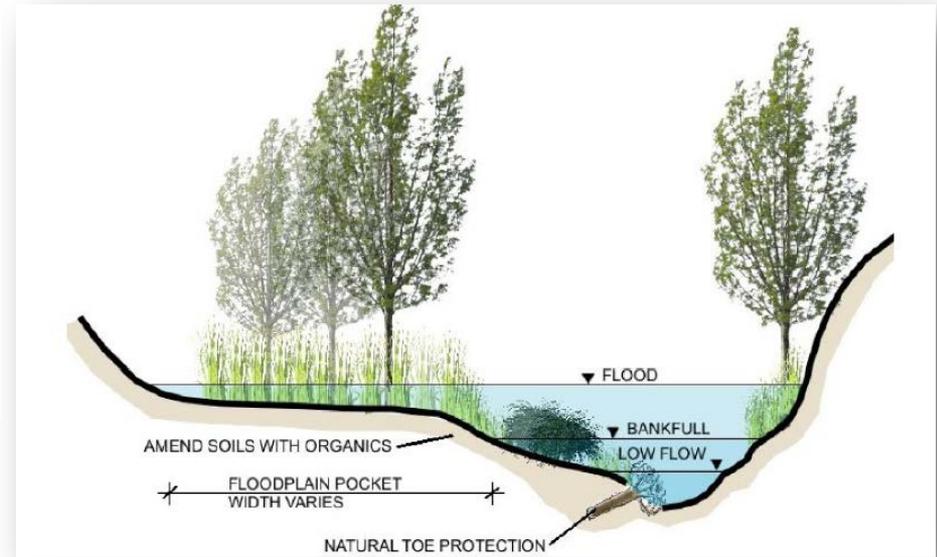
**Properties:** Reaches are generally tightly confined by the valley margin except for breaks in the bedrock where the valley widens. This channel type mainly occurs in the canyon landscape zone. The breaks in the bedrock accumulate alluvium (and colluvium, which causes a local decrease in channel gradient). These areas act as floodplain, storing sediment, capturing debris and dissipating flood energy.

Reaches Observed: 9, 10, 13, 16, 18, 19



Reaches 9 & 10

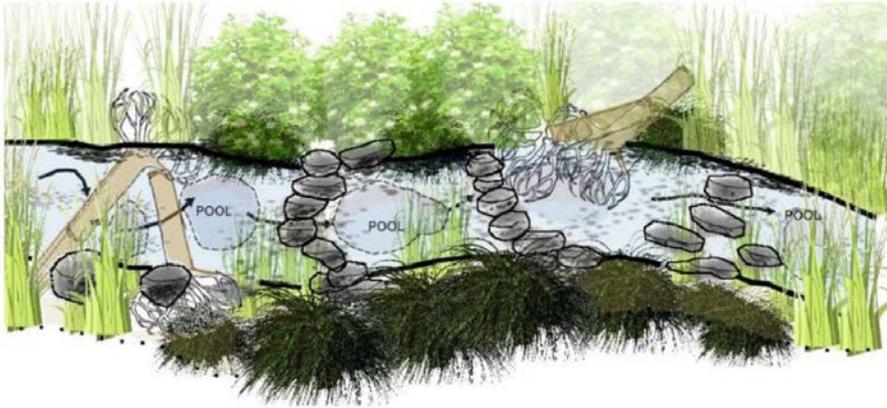
Confined Valley- Typical Section



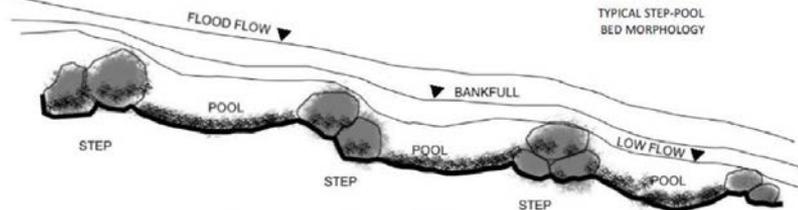
# Left Hand Canyon Creek-Restoration

Confined Valley with Bedrock-Controlled Floodplain Pockets River Style (Cont.)

Recommended Restoration Plan Style (Cont.)



Typical Profile



Confined Valley-  
Plan and Profile

# Lefthand Canyon Drive/Left Hand Canyon Creek – Summary

- **Boulder County and Central Federal Lands (CFL) are proposing a roadway design that fits within Right-of-Way equal to what is in place now, 60' wide.**
- **Additional property will be needed for Permanent Slope Easements so that the roadway can be moved up and away from the creek channel.**
- **Moving the roadway away from the creek and restoring/widening the creek channel will restore the creek ecosystem to be consistent with the watershed masterplan.**
- **CFL/Boulder County will be restoring approximately 11,700 feet or 2.2 miles of creek channel that is within City of Boulder Open Space.**
- **CFL/ Boulder County will be constructing 2 new clear span bridges within the City of Boulder Open Space.**

# Lefthand Canyon Drive – Estimated Property Impacts

## **CFL Realignment/Reconstruction estimated impacts to City of Boulder Open Space:**

- **Existing 60' Boulder County ROW – 14 acres**
- **Proposed 60' Boulder County ROW (after road realignment) -14 acres**
- **Proposed Permanent Slope Easement (to Boulder County) – 7 acres**
- **Proposed Re-aligned Roadway Construction Disturbance Area – 21 acres**