

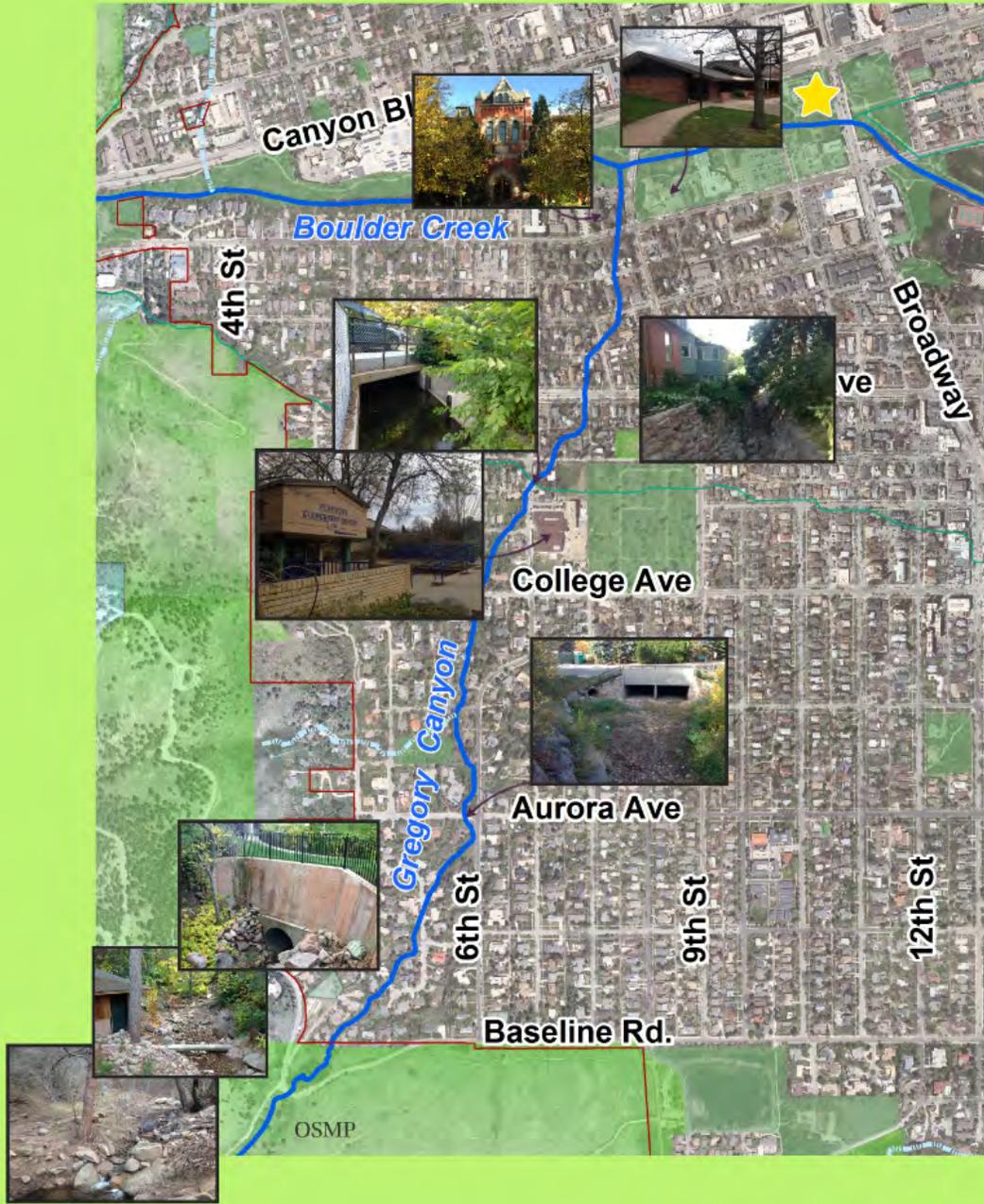
City Council
Dec. 1, 2015

Gregory Canyon Creek *Flood Mitigation Plan*



Agenda

1. Watershed Overview
2. Background
3. Planning Process
4. Plan Recommendations
5. Next Steps
6. Public Hearing
7. Council Consideration





OSMP



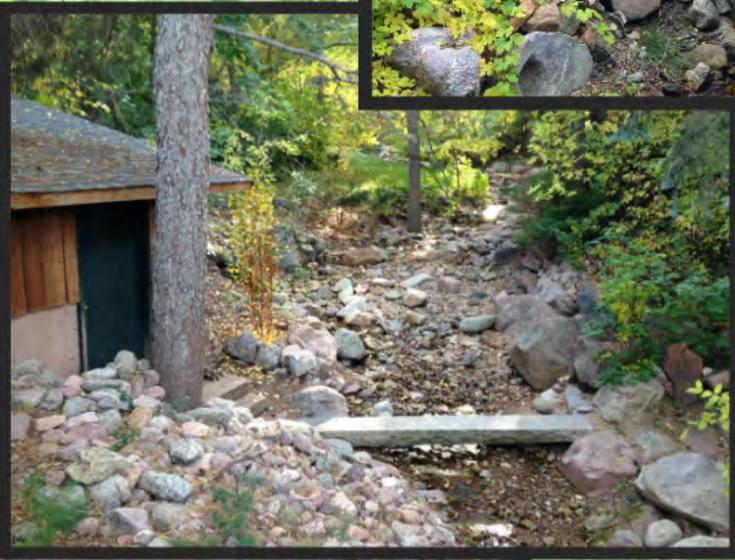
Gregory

6th St

Aur

Basel

OSMP





College Ave



Gregory Canyon

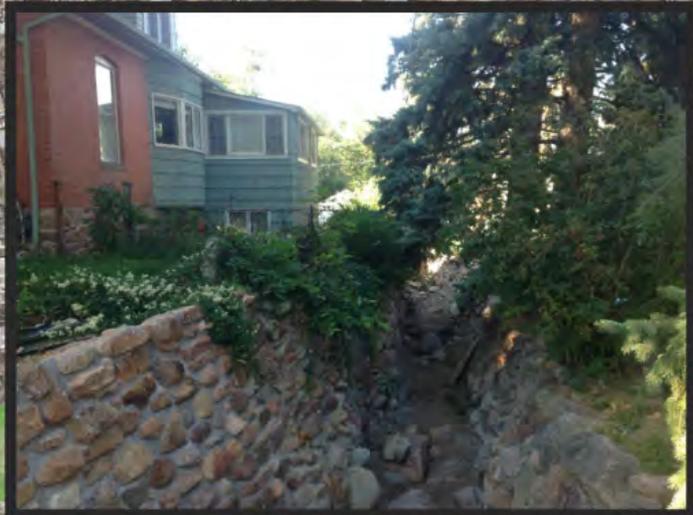
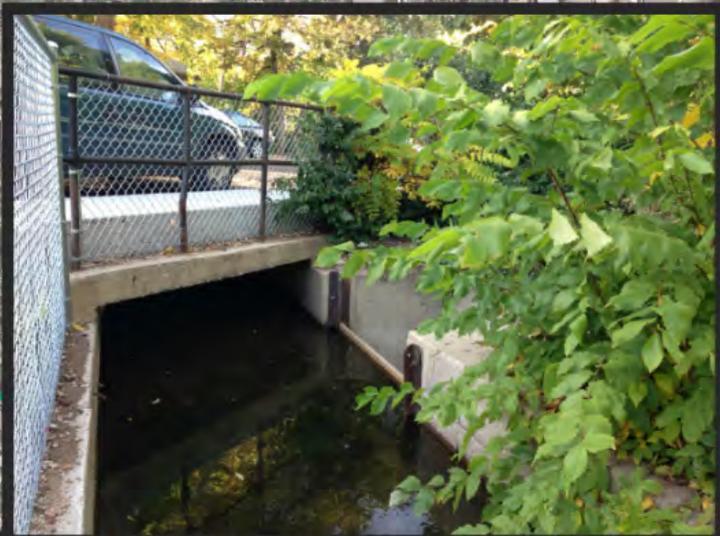
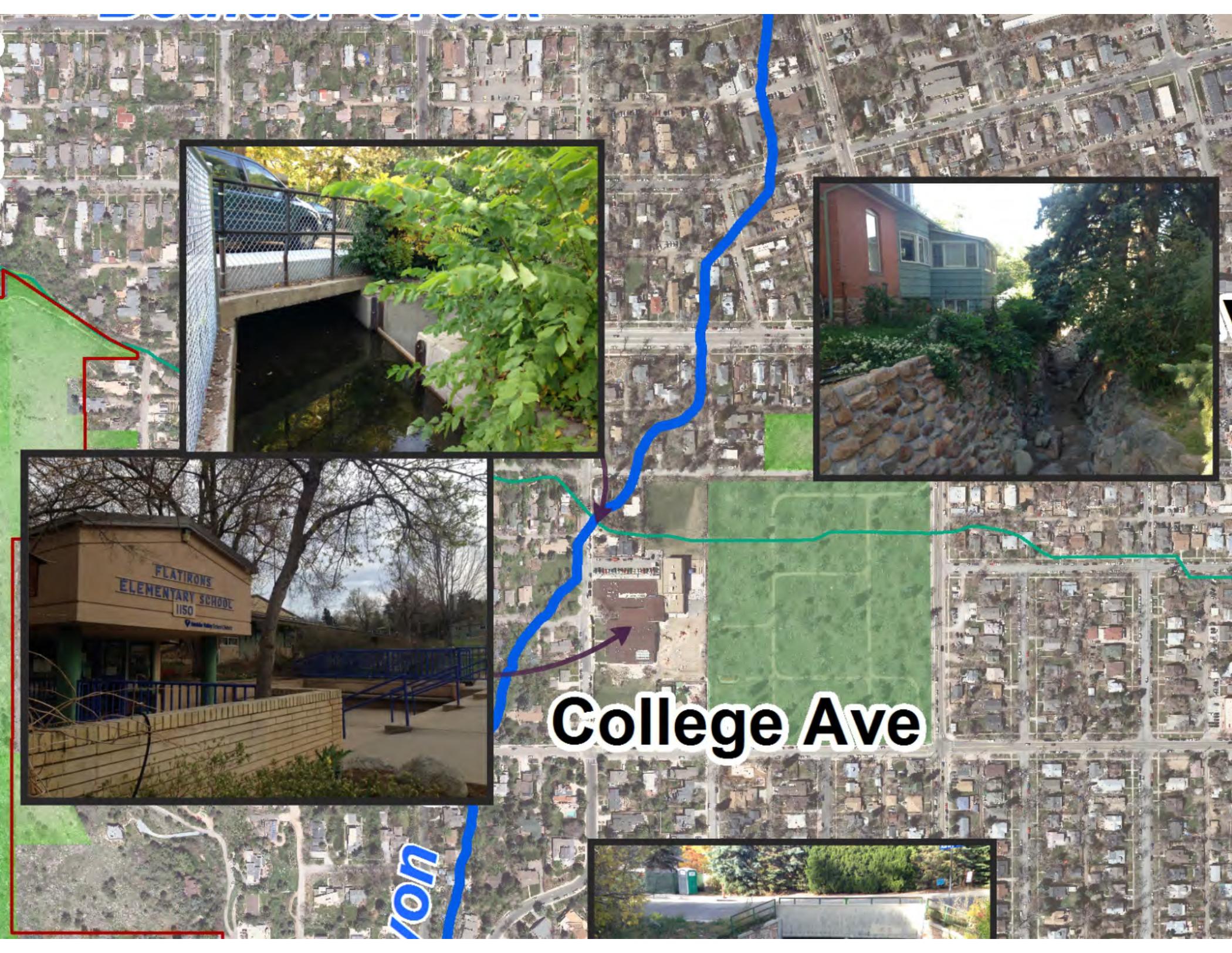


Aurora Ave



st

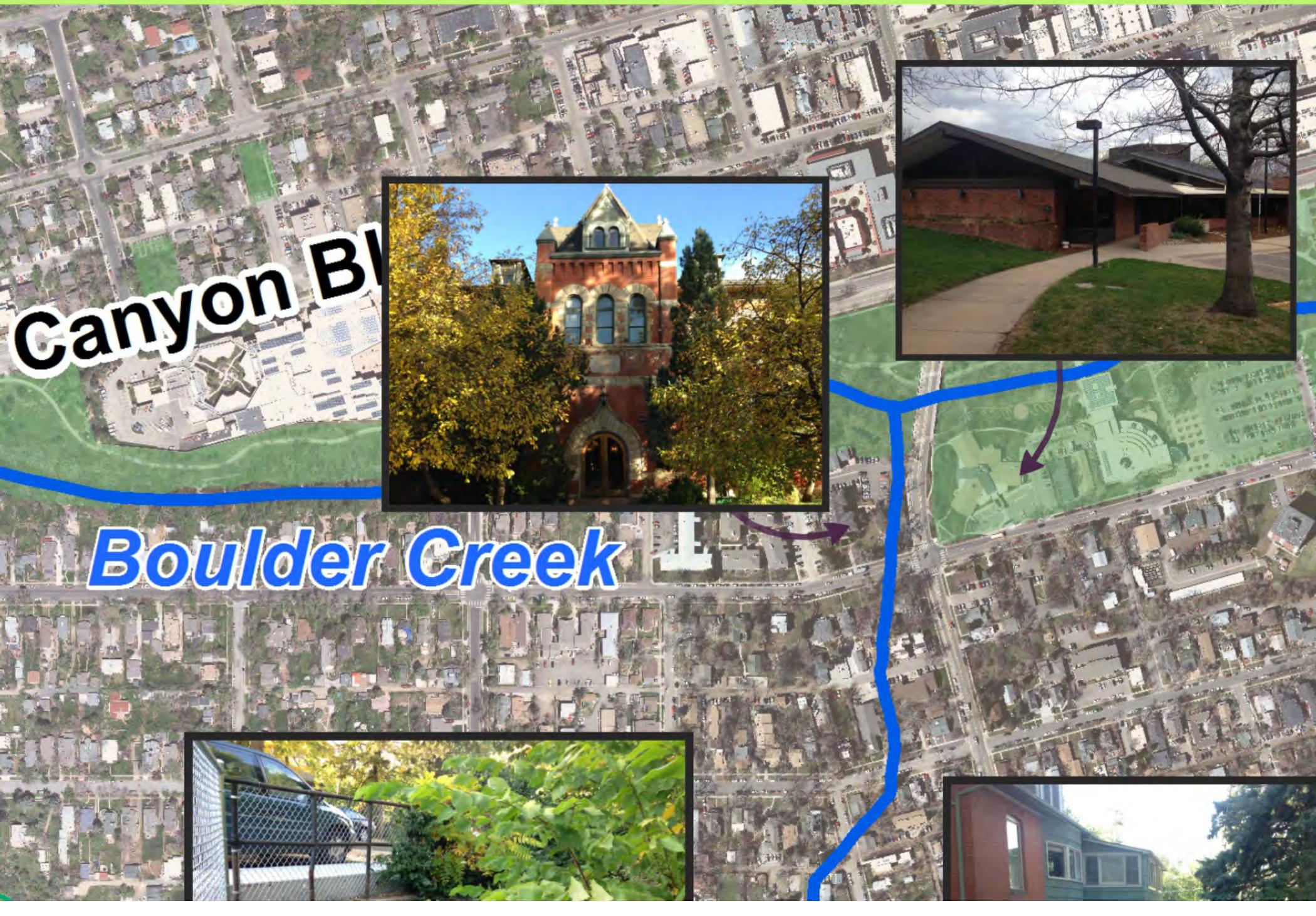
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College Ave



yon



Canyon Bl

Boulder Creek





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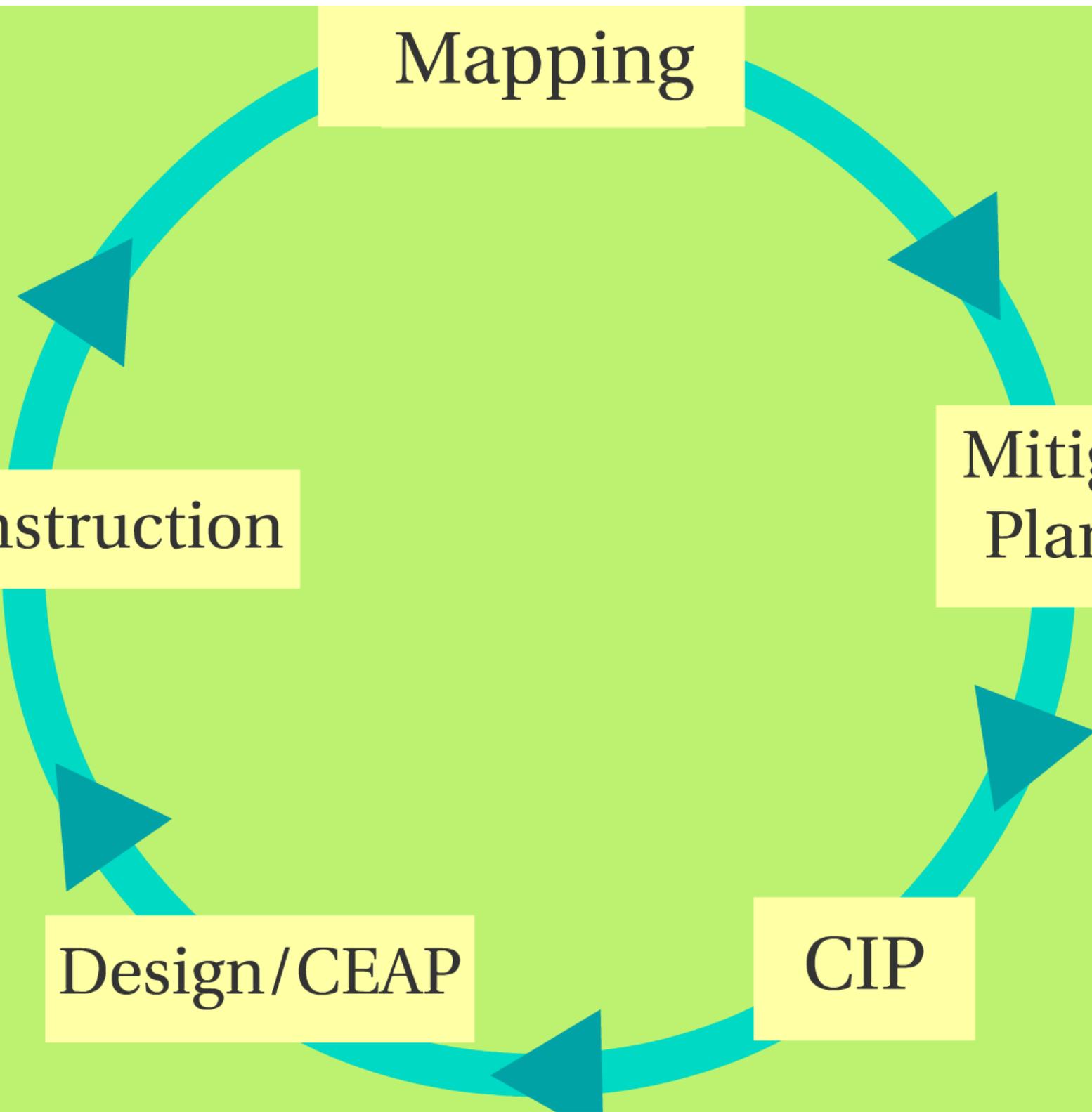
Mapping

Mitigation
Planning

Construction

CIP

Design/CEAP



Gregory Canyon Creek
Floodplain Mapping Update

2008-2010



Mapping



Mitigation Planning

2008 - Mini Master Plan

2010 - Mitigation Analysis

2012 - Property Acquisition



2010 - Mitigation Analysis

2012 - Property Acquisition

810 Marine



2012 - Property Acquisition

810 Marine



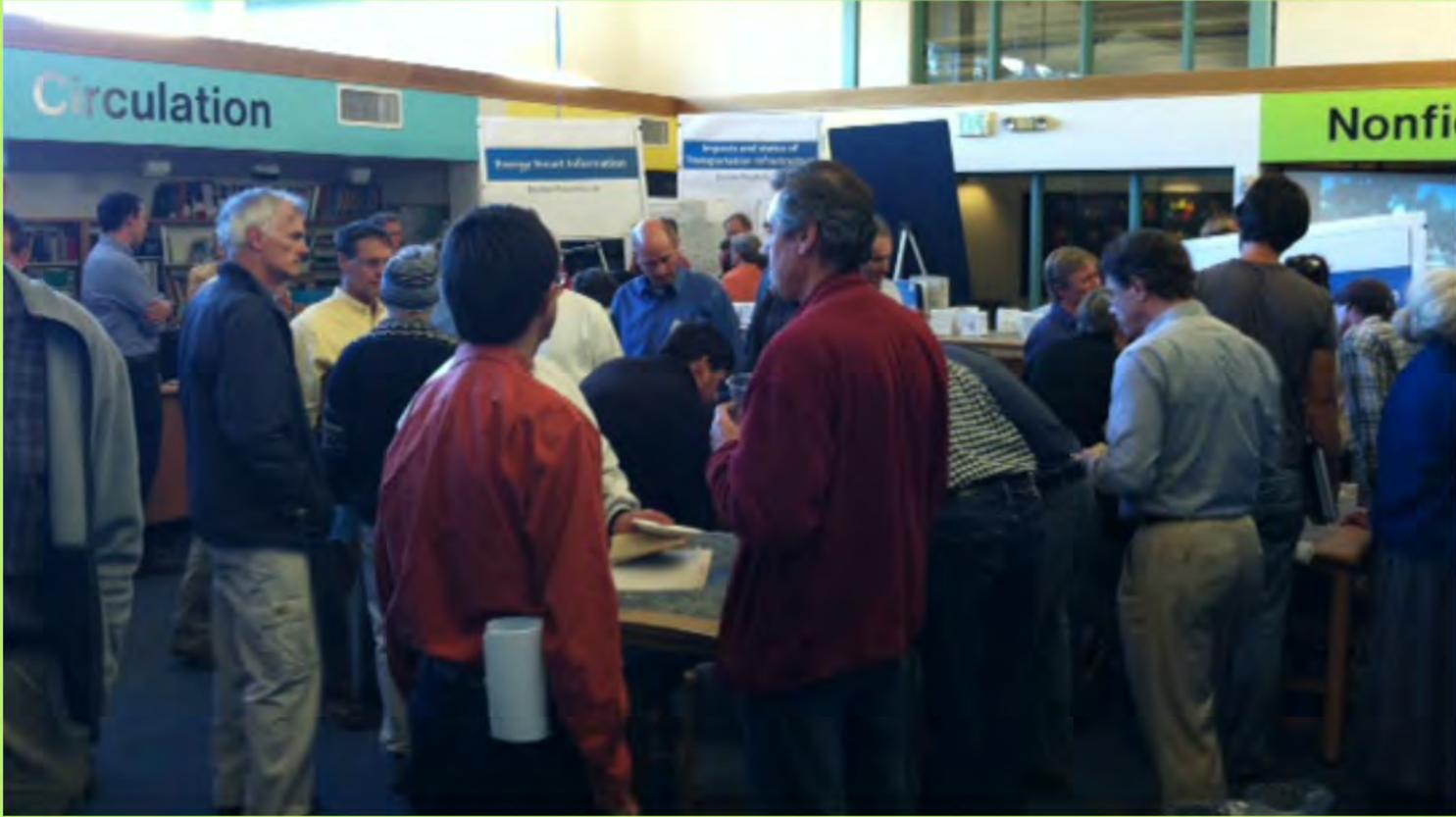


















City Council
Dec. 1, 2015

Gregory Canyon Creek *Flood Mitigation Plan*





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Neighborhood Engagement

Neighborhood Engagement

Open House Meetings
Website
Public Hearings
Site Walks
Individual Meetings
Phone Calls & E-mails

Guiding Principles

Policies

- Prevent unwise uses and adverse impacts in the floodplain
- Seek to accommodate floods, not control them

Boulder Valley Comprehensive Plan (BVCP)

Comprehensive Flood and Stormwater Utility Master Plan (CFS)

UDFCD Drainage Criteria Manual

Greenways Master Plan

**Guiding Principles
Policies**

Focus on mitigating high hazard locations

- Preserve floodplains
- Be prepared for floods
- Help people protect themselves from flood hazards
- Prevent unwise uses and adverse impacts in the floodplain
- Seek to accommodate floods, not control them

Boulder Valley Comprehensive Plan (BVCP)

Comprehensive Flood and Stormwater Utility Master Plan (CFS)

UDFCD Drainage Criteria Manual

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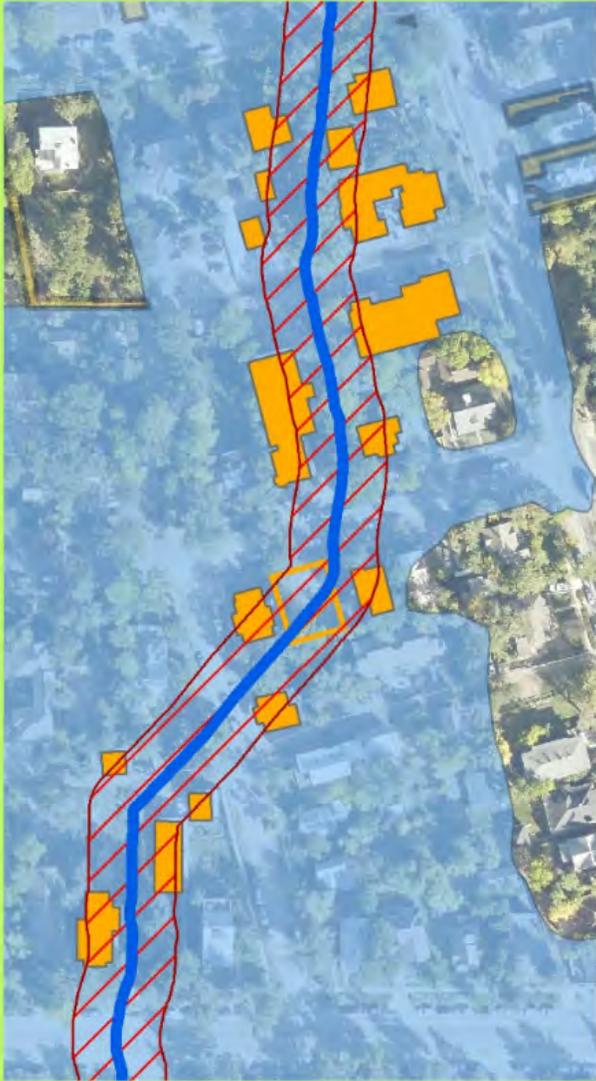
Preserve natural values

Focus on mitigating high hazard locations

- Preserve floodplains
- Be prepared for floods

100-Year Flood

feasible?



58 Structures
\$55 Million

What is feasible?

Retention?

S

What is feasible?

Detention?

Street conveyance?

Less than 100-year design?



Mitigation Categories:

- Culvert Improvements
 - Channel Improvements
 - Street Conveyance
 - Detention Facilities
 - Property Acquisition
 - Other Improvements
- 

Benefit Cost Analysis



Alternative

Benefit Cost Ratio

10-year culvert improvements

2.67

10-year culvert improvements
with street conveyance

1.52

Maximum size culvert improvements

1.78

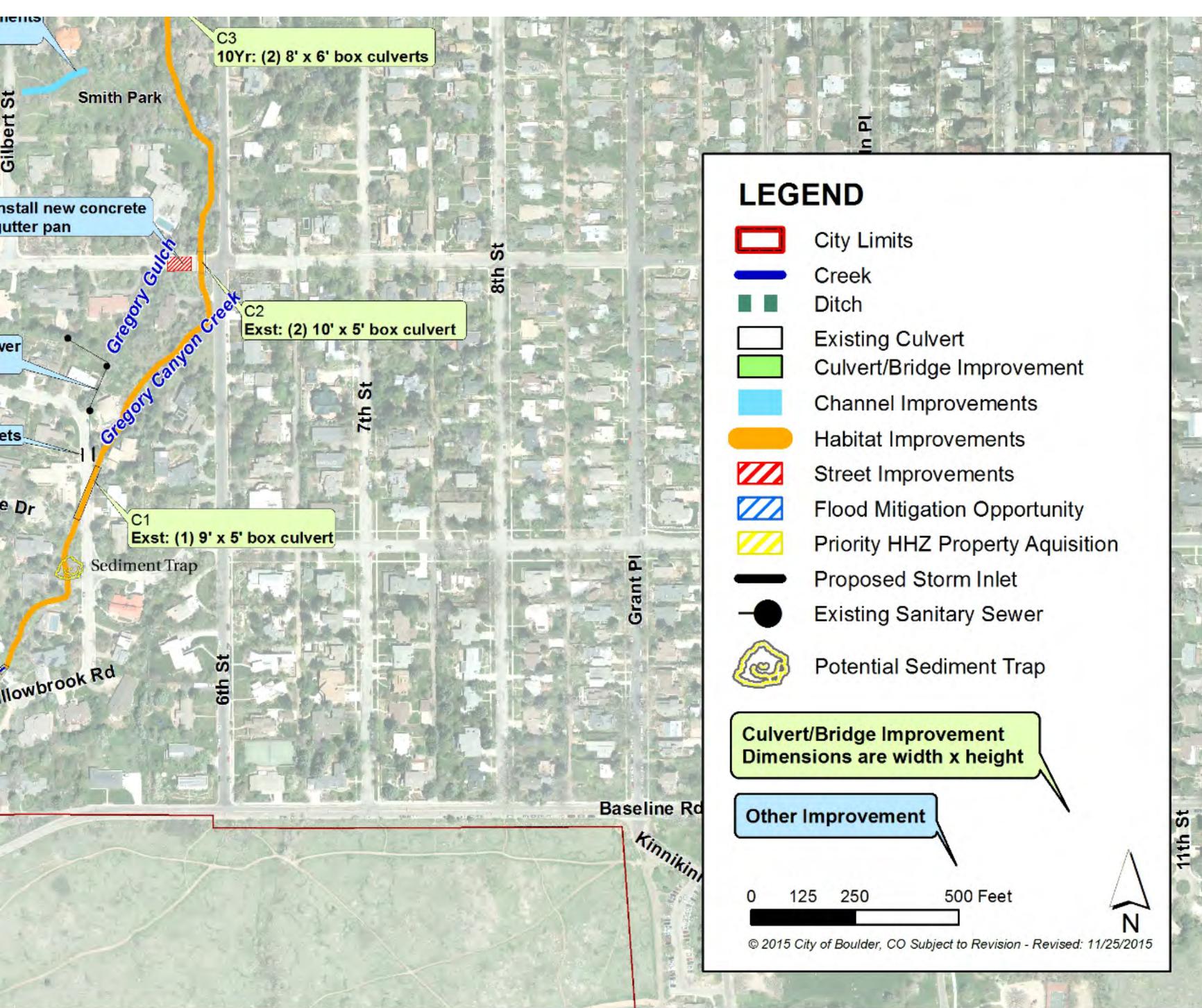
Maximum size culvert improvements
with street conveyance

1.28



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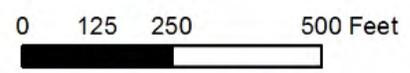


LEGEND

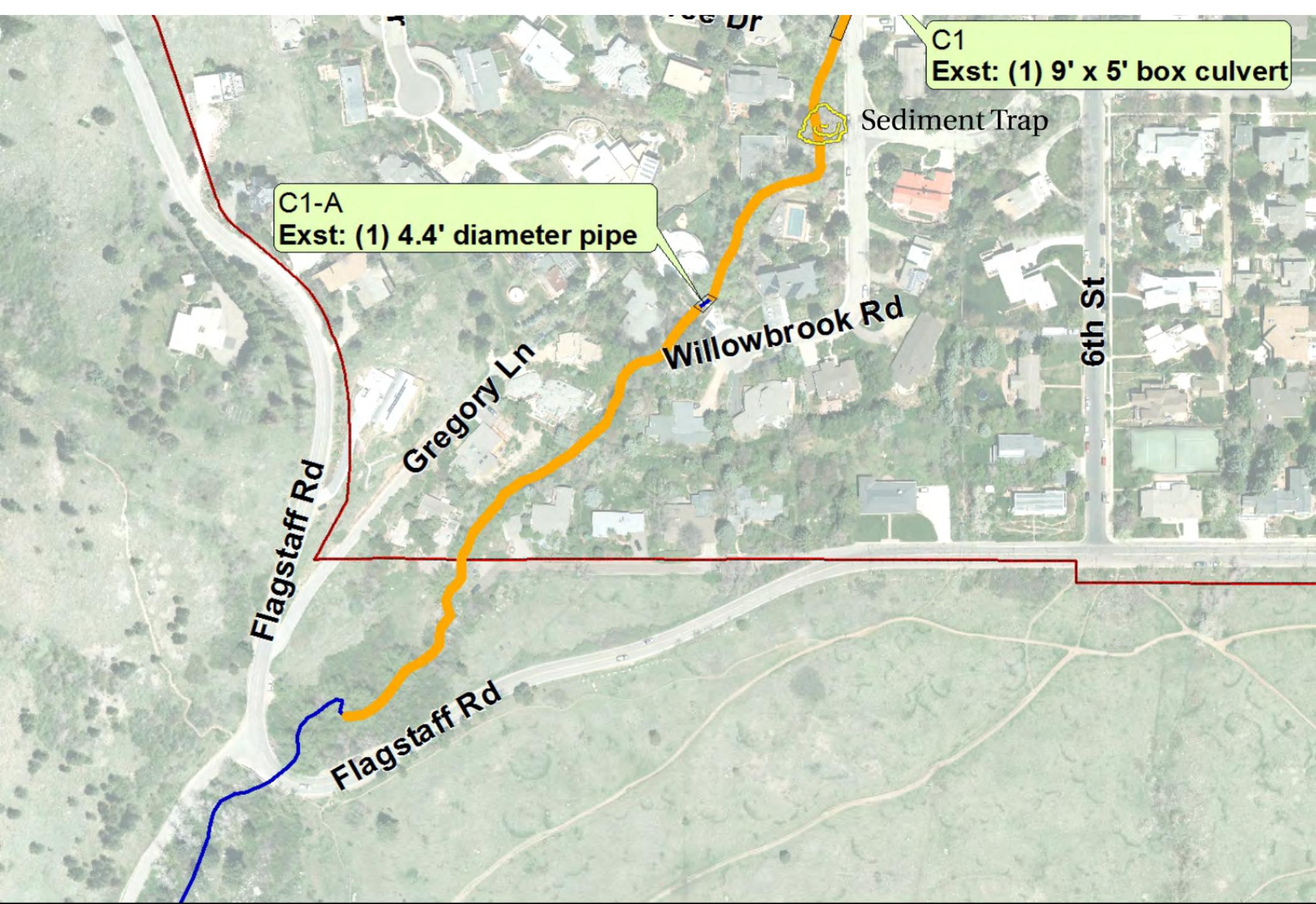
-  City Limits
-  Creek
-  Ditch
-  Existing Culvert
-  Culvert/Bridge Improvement
-  Channel Improvements
-  Habitat Improvements
-  Street Improvements
-  Flood Mitigation Opportunity
-  Priority HHZ Property Aquisition
-  Proposed Storm Inlet
-  Existing Sanitary Sewer
-  Potential Sediment Trap

Culvert/Bridge Improvement
Dimensions are width x height

Other Improvement



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C1-A
Exst: (1) 4.4' diameter pipe

C1
Exst: (1) 9' x 5' box culvert

Sediment Trap

Flagstaff Rd

Gregory Ln

Willowbrook Rd

6th St

Flagstaff Rd

Channel improvements
Path overflow

C3
10Yr: (2) 8' x 6' box culverts

Install new concrete
gutter pan

C2
Exst: (2) 10' x 5' box culvert

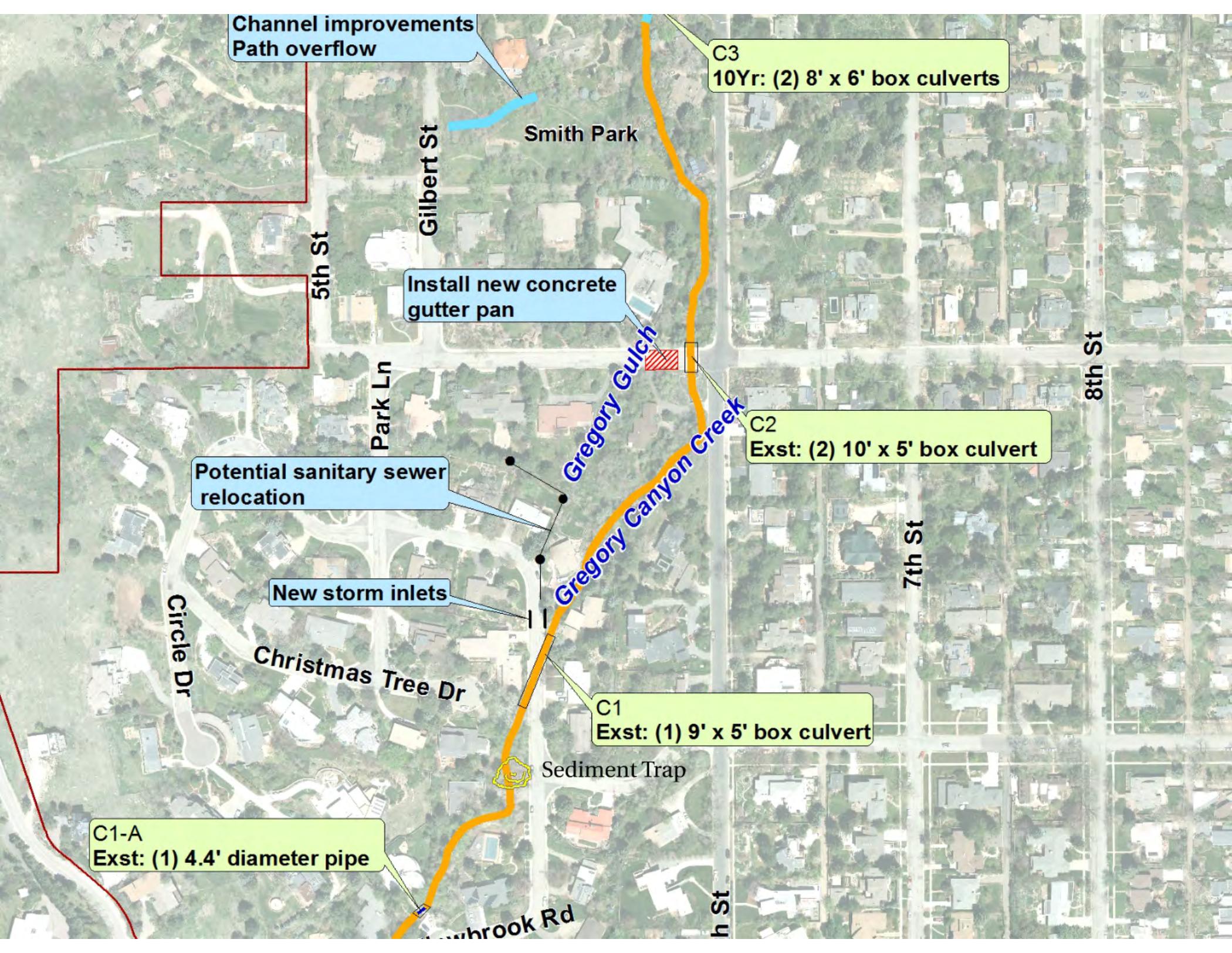
Potential sanitary sewer
relocation

New storm inlets

C1
Exst: (1) 9' x 5' box culvert

C1-A
Exst: (1) 4.4' diameter pipe

Sediment Trap



Gilbert St

Smith Park

5th St

Park Ln

Gregory Gulch
Gregory Canyon Creek

8th St

7th St

Circle Dr

Christmas Tree Dr

Brook Rd

h St



10Yr: (2) 6' x 6' BOX CULVERTS

Jay St

Street Improvements

7th St

College Av

Geneva Av

Gregory Canyon Creek

C4
10Yr: (2) 7' x 6' box culverts

Weed management
Channel improvements
Path overflow

Euclid Av

Euclid Av

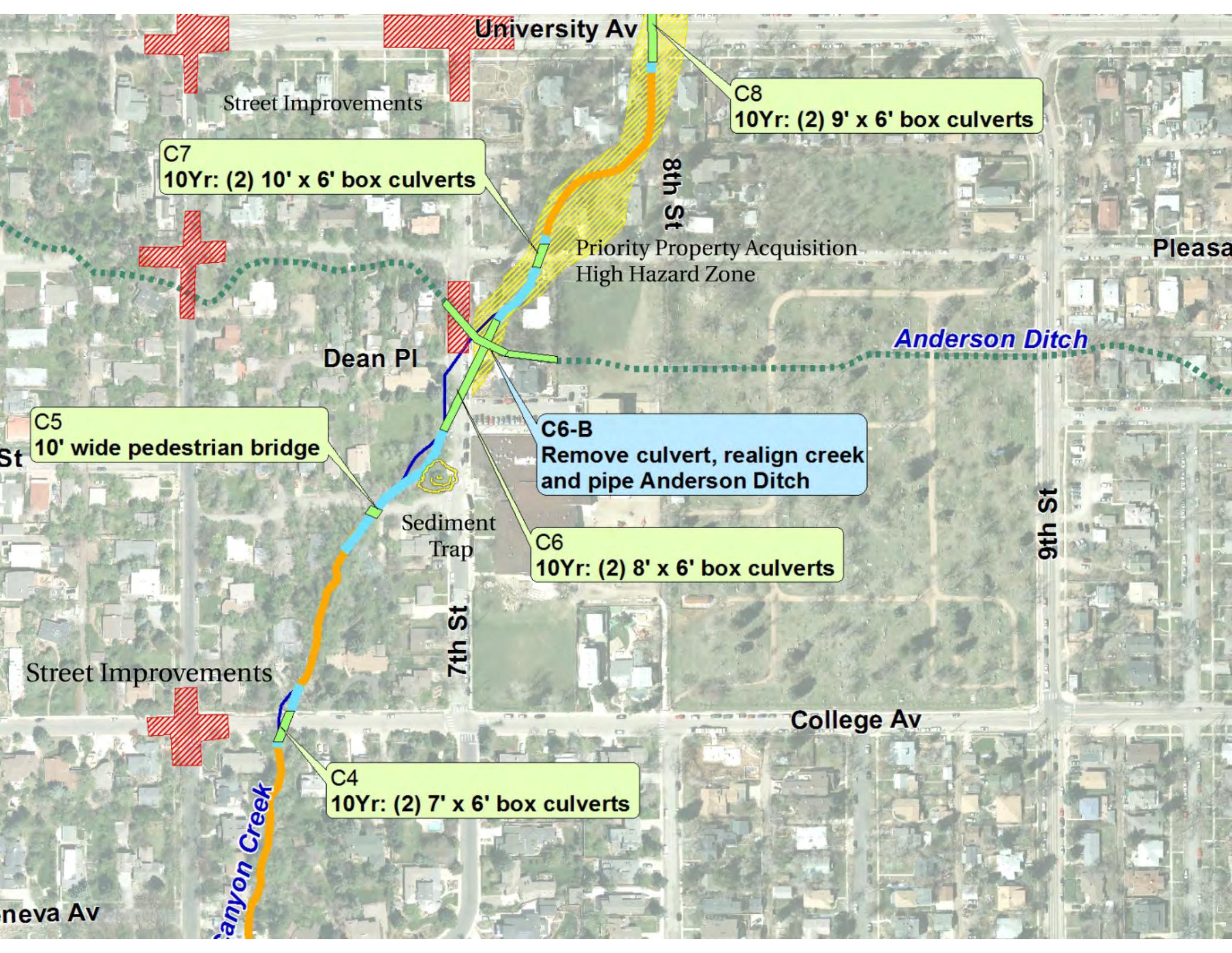
C3
10Yr: (2) 8' x 6' box culverts

Smith Park

Gilbert St

Install new concrete
gutter pan

5th St



University Av

Street Improvements

C7
10Yr: (2) 10' x 6' box culverts

C8
10Yr: (2) 9' x 6' box culverts

8th St

Priority Property Acquisition
High Hazard Zone

Pleasa



Dean PI

Anderson Ditch

C5
10' wide pedestrian bridge

C6-B
Remove culvert, realign creek
and pipe Anderson Ditch

Sediment
Trap

C6
10Yr: (2) 8' x 6' box culverts

7th St

9th St

Street Improvements

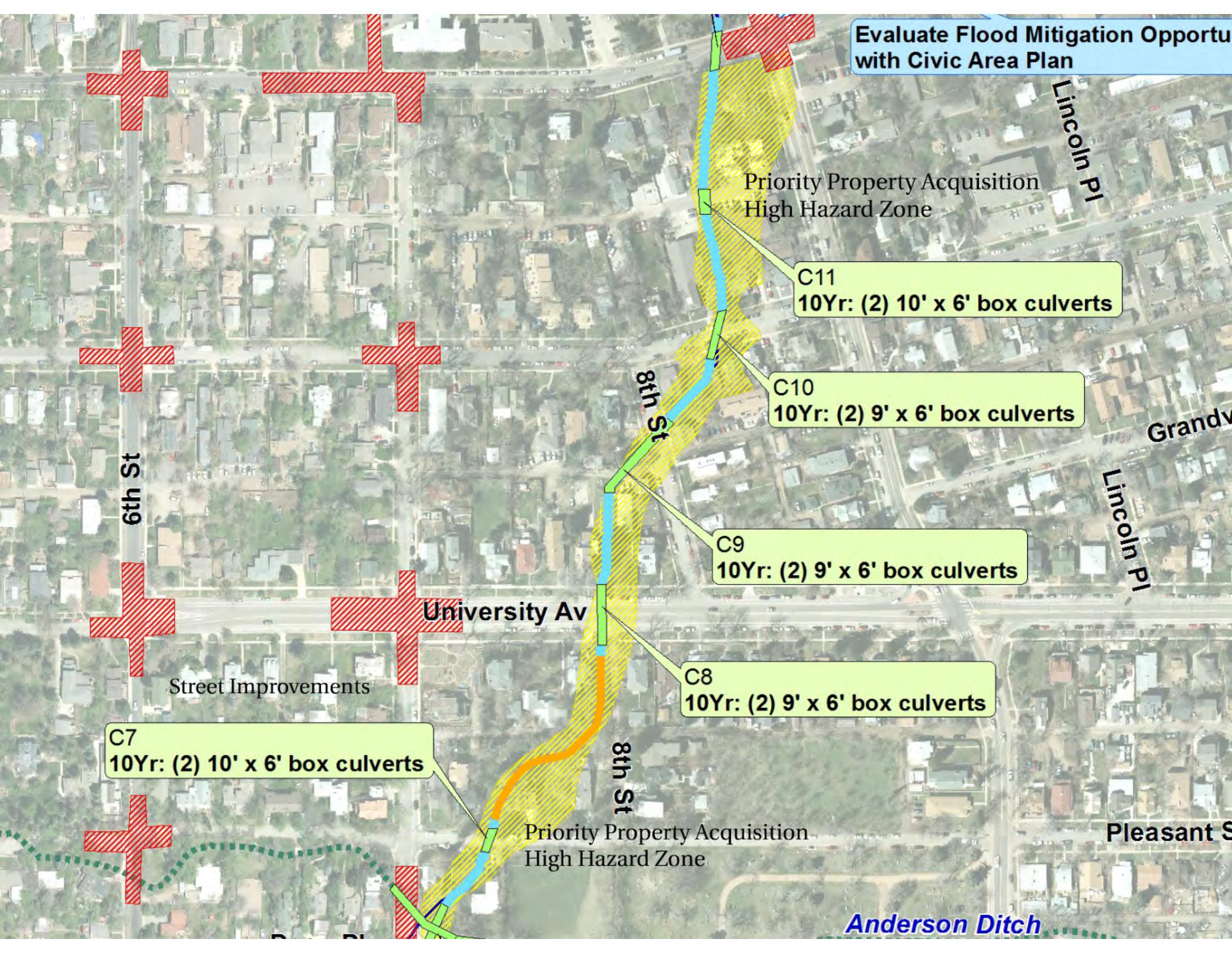
College Av

C4
10Yr: (2) 7' x 6' box culverts

Canyon Creek

neva Av

Evaluate Flood Mitigation Opportunities with Civic Area Plan



Priority Property Acquisition
High Hazard Zone

C11
10Yr: (2) 10' x 6' box culverts

C10
10Yr: (2) 9' x 6' box culverts

C9
10Yr: (2) 9' x 6' box culverts

C8
10Yr: (2) 9' x 6' box culverts

C7
10Yr: (2) 10' x 6' box culverts

Priority Property Acquisition
High Hazard Zone

Street Improvements

Anderson Ditch

6th St

University Av

8th St

8th St

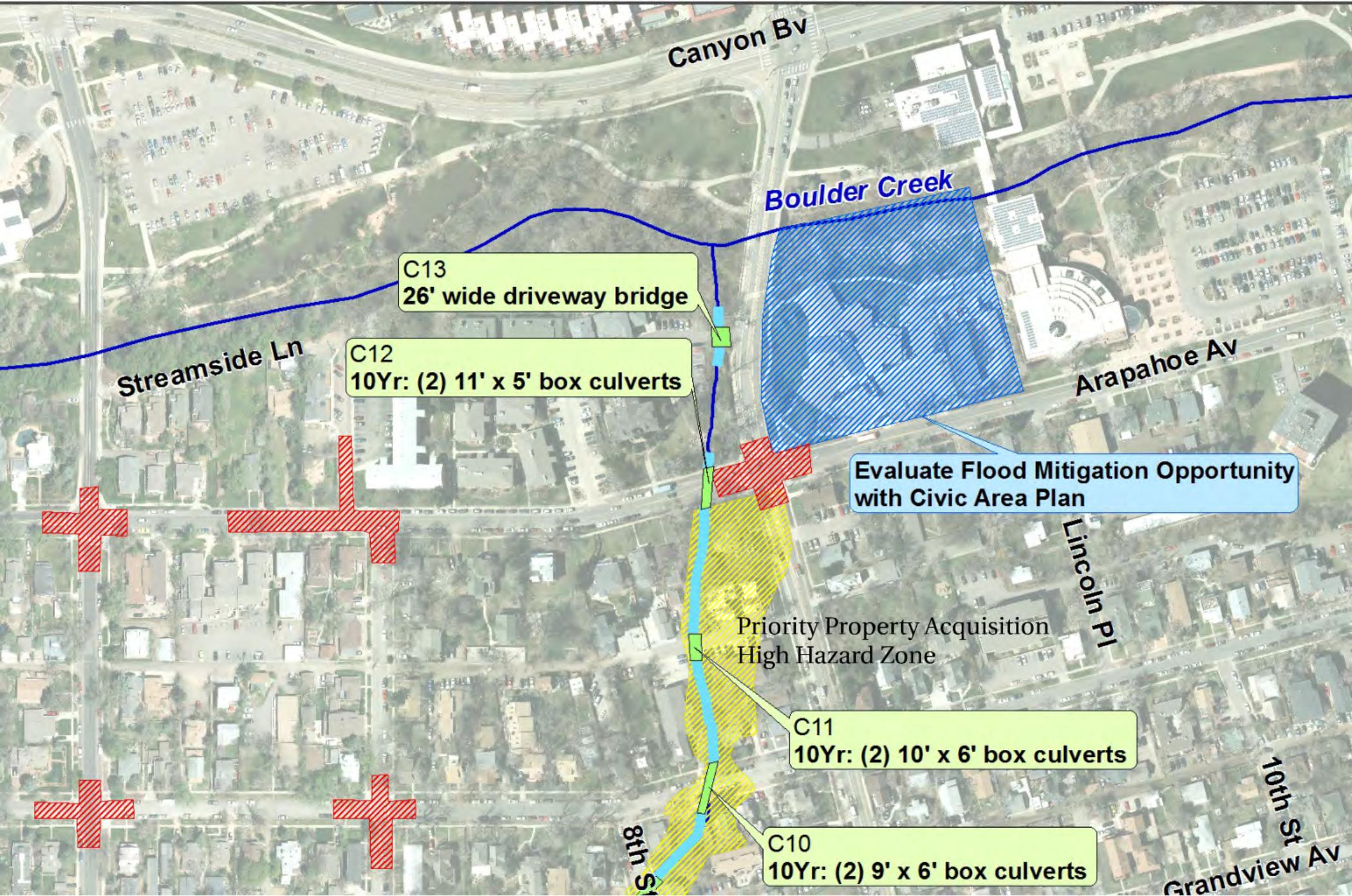
Lincoln Pl

Grandv

Lincoln Pl

Pleasant S

Canyon Creek Recommended Plan



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Next Steps:

- Identify projects for CIP
- Investigate funding opportunities
- Project design
- Easement acquisition
- Construction

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Gregory Canyon Creek Recommended Plan



| Proposed Improvements | | Cost |
|-----------------------|----------------------------------|---------------------|
| 1. | Culvert and channel improvements | \$9,924,400 |
| 2. | Road improvements | \$2,102,200 |
| 3. | Sediment trap at Willowbrook | \$86,100 |
| 4. | Habitat Improvements | TBD |
| 5. | Pipe the Anderson Ditch | \$43,400 |
| 6. | Sanitary Sewer Relocation | \$164,600 |
| 7. | Storm Drain Inlets | \$147,600 |
| 8. | Culvert Grates | TBD |
| 9. | Property Acquisition | \$7,631,100 |
| 10. | Civic Area flood mitigation | TBD |
| 11. | Non-Structural Methods | N/A |
| Total: | | \$20,099,400 |

Staff Recommendation:

Motion to accept the Gregory Canyon Creek Flood Mitigation Plan.

- 6. Public Hearing
- 7. Council Consideration

City Council
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Gregory Canyon Creek *Flood Mitigation Plan*

