



Gregory Canyon Creek Mitigation Study

Open House

March 30, 2015

Summary of Public Comments Received

Purpose of Meeting

The purpose of the March 30, 2015 Open House was to present the Engineer's Recommended Plan and Staff's Recommended Plan for the Gregory Canyon Creek Flood Mitigation Study and to receive feedback from the public. City staff and the project consultants are assimilating the comments and suggestions received at the open house, as well as additional comments received by the public, in order to continue to refine and identify the recommended alternative.

Summary of Open House Comments:

Approximately 15 people attended the open house. The majority of the residents are in support of Staff's recommended plan. Additional comments received are as follows:

- It was suggested that the storm inlets on Willowbrook cover the same area north of the culvert as well as above the culvert.
- Appreciation was expressed in regards to the channel improvements proposed in the lower creek.
- There was support for acquisition of the properties within the High Hazard Zone Priority Area. The city should contact those property owners to see if they are willing to sell.
- It is a well researched, well intentioned plan.
- The efforts are supported, but it is understood that individual property owners will draw conclusions based on impacts to their own properties.
- The streets should include signs which convey the high risk of flooding during a 10 to 100-year storm.
- A fence has been constructed on private property across the creek channel. Was this permitted by the city? If not, please have the city investigate.
- Thank you for the hard work.
- Impressed with the professionalism and creativity by staff.

Gregory Canyon Creek Flood Mitigation Study
March 30, 2015 Open House
March - April 2015 Online Questionnaire
Public Comments

1. Are you supportive of the City of Boulder Staff Recommended Plan?
 - a. Yes, overall. I am relieved to see channel improvements proposed in the lower creek, as well as prioritized HHZ properties to acquire. I have lots of questions about the details, but I understand those are not well-defined yet. (J. Jimenez)
 - b. The comments I made to the 15 people doing the walk were lost. My idea is to make the storm intake across Willowbrook cover the same area north of the culvert as well as above the culvert. (J. Imig)
 - c. I think it is a well researched, well intentioned plan. I support the efforts but understand that individual property owners (myself included) will draw conclusions based on impact to their own properties. (K. Campbell)
 - d. Yes. (L. McGowan)
 - e. Yes. (M. Moench)
 - f. Yes. (J. Butcher)
 - g. Yes. (D. Schouten)
 - a. Yes. We attended the open house on March 30, and appreciated the opportunity to talk with staff about the draft proposal. Since my home is next to the Anderson Ditch, I support making that a pipeline, running below ground. During the flood, it filled to the top with silt next to my home. (R. Roser)

2. What other improvements do you suggest?
 - b. Spoke to Christen Shepard and Franz to explain the idea (also on a blue sticky note). (J. Imig)
 - c. Signs on potential risk on streets where flow is likely to be high in 10 year or 100 year events. (M. Moench)
 - d. Continued vigilance of Willowbrook culvert. (J. Butcher)
 - e.
 1. Bury overhead lines along 7th St. which would also prevent downed lines in big snow storms.
 2. Raise the retaining wall in the Flatirons School parking lot, north side next to my property. (R. Roser)

3. Do you have comments about specific improvements proposed?
 - a. I would like personal feedback as to whether this idea will be considered and a detailed explanation of why or why not. (J. Imig)
 - b. I suggest contacting the owners of HHZ properties that the city desires to acquire, as they may not be aware of this. Chances are a couple of them might be interested in selling to the city in the next couple of years, and that may open up more options in specific areas. (J. Jimenez)
 - c. I would like to point out that the property owner at the NW corner of 6th and Aurora has constructed a fence across the creek channel. If this was permitted by the city, I would like to ask, why? If it was not permitted, I would ask the city to investigate. (K. Campbell)
 - d. Thank you for all your hard work. Looks great. (L. McGowan)
 - e. All makes sense. (M. Moench)
 - f. I continue to be impressed with the professionalism & creativity of the staff. (J. Butcher)
 - g. I would be pleased to discuss sharing costs of retaining wall (or solid fencing) of the school parking lot on the property line. (R. Roser)



Gregory Canyon Creek Mitigation Study Open House and WRAB Meeting October 20, 2014 Summary of Public Comments Received

Purpose of Meeting

The purpose of the October 20, 2014 Open House and Water Resources Advisory Board (WRAB) meeting was to present the preliminary alternatives for the Gregory Canyon Creek Flood Mitigation Study and to receive feedback from the public and board members. City staff and the project consultants are assimilating the comments and suggestions received at these meetings, as well as additional comments received by the public, in order to continue to refine and identify the best alternatives.

Summary of Open House Comments:

- We live in a beautiful city. We are fortunate to live near running water, but everything has a price! I think we should start whatever we end by deciding to do from Boulder creek going south. The culvert on highland school land is 36"! Since Canyon Blvd. is going to be impassable during a Boulder Creek 100 year flood, we need to ensure that Arapahoe is passable. Hence we need to expand the Arapahoe culvert first, and hopefully when we do others. As a stakeholder, I am willing to walk with City staff, grant an easement, be taxed or whatever it takes to finish the project & help the Civic Area designers glam our Gregory Creek is not going to be forgotten.
- How are the alternatives going to be chosen? How will city decide when or how to purchase identified properties in hazard area? How does the city decide how big to make the different box culverts?
- The 31'x6' culvert at Euclid is a major concern to us. This is a major physical intervention that would impact us visually, aesthetically, and in the way we use our property in a significant way.
- I am concerned with the accuracy of the modeling. At no time was the culvert at 6th and Euclid, which is presently ~ 4ft diameter, at capacity in the 50-75 year event of 2013. Water flowed primarily down 6th and Euclid and down from Edward Smith Park. I don't see any attempt at mitigation of the Smith Park overflow.
- To truly utilize a 31' wide culvert at 6th and Euclid one would need to deepen the creek. That would destroy the deer/fox habitat along with removal of significant trees and vegetation. Occasional flooding would be preferred to this kind of destruction.
- BOTTOM LINE: the engineers have addressed lots of issues that I and neighbors have been thinking. Putting in large box culverts will be a big improvement and "buy insurance" against rock/vegetation clogs. Modifying road grades/crowns (eg directing flow down 7th street) is exactly right.
- Good job at making the effort to reach out and educate the neighborhoods. Consider the following financing proposal: There may be home owners who are retired and thus "asset rich" and "income poor". They may be willing to make improvements to their properties, but not be able to afford them from current income. This could be accommodated by a grant to the owner for the improvements and a lien on the property to be paid off when the owner moves or by their estate. This would fit in the philosophy of "public-private partnership".
- All three alternatives seem viable and reasonable. However no particular improvement has increased priority, nor do the recommendations align with the 2001 Belt Collins problem areas. The 2012 mitigation suggestions or the actual observations from Sept. 2013.

Summary of Open House Suggestions:

- The storm drains in front of 833 Marine are old, and are inadequate for the kind of debris that cover them up. We've been cleaning up the drains for 60 years because they are too small.
- It appears that the SECOND culvert under Euclid Ave, about 30'-40' to the west of the proposed 31'x6' culvert has been overlooked in the study. It likely should be considered as part of any flood mitigation- maybe two smaller culverts?
- What about the 100 year trees that border the creek? What care would the city take to maintain their health?
- A) The city should be aware that a high flow event down 7th street (Univ. - Arapahoe) will destroy the paving and curbs. This is not against doing the redirection, just a heads up on future repairs.
B) As a property owner, I have invested in flood mitigation measures. The ones I did prior to 2013 worked well. I believe that this is a "private" or "public project" not just a city project.
- 1.) Strongly suggest purchasing the property in the high hazard at 1655 9th street. There are 2 houses, one of which is 2ft from the creek channel and should be the highest priority.
2.) The culvert enlargements should be considered at the same time as the up-and downstream channel enlargement.
- I liked the Pennsylvania roadway removal plan that was considered.

Summary of WRAB Meeting Comments:

- Lives near Flatirons Elementary School, really appreciates where city is going with their plan and agrees that conveying a 100 year flood out of the question. Read study in its entirety. Alternatives proposed do not necessarily match what actually happened on the ground during the flood. Problematic area during this event that may not adequately be addressed at 7th. Does not have a strong feeling on option three in the roadway. Feels that spending money to make the roads convey without hurting property is money well spent. People are open to having flood mitigation done on their properties, but there are possible challenges there. Impressed with how accurately earlier studies match up with what was seen during the flood event. May be able to leverage earlier studies going forward.
- Lives midway on creek and has specific question regarding two maps and noticed there is a chart in attachment A that shows different culverts and what improvements would look like in a 10-year plan or maximum culvert (35x6). The 10 and 50 year maps only show maximum 50-year extent. Comments were heard during open house questioning this finding showing 35 foot culverts on the 10-year map, which isn't actual benchmark for 10-year event. Requests clarification whether the maps reflect 10-year or maximum numbers and asks if maps need updating.
- Wants to thank the board for hearing the neighborhood last year and putting neighborhood's name out there for potential for growth, which shows a lot of thought. Concerns about map showing 35-foot culvert and hopes that Board will take closer look at document from CH2M Hill to address and consider street conveyance. Appreciates Board taking a closer look at this creek and looks forward to the future.
- Didn't have problems like University and 7th. Suggests putting energy into conveyance because Mother Nature is going to decide, not what planners decide. Water went back into Gregory Creek because a car diverted it. This area is packed with cars and not enough parking.
- Lives on College and appreciates looking into this issue. Mentioned culvert at College Avenue, which was filled with fences and BBQ grills that were piled into culvert, forcing water to run over

the creek onto other properties. Suggests looking at this issue and better advising people not to put objects in the creek bed. Mentioned 22-foot wide culvert at Aurora and feels that a 35-foot culvert is too excessive.

- Lives on College, family built house in 1950. At height of flood, banks took all the flood waters, bank to bank and held a 1.5 – 2 feet of water before touching his foundation. Some of the street did have water conveying and he built diversion with 2x4's which diverted water down College, past Flatiron Elementary School. According to charts – what happened on College is being compared to what happened on Pennsylvania, which are not comparable. Stone bridge on his property has weathered 3 major storm events in his lifetime, which is a good model.
- Lives below Anderson Ditch. Asks what kind of incentive programs are being considered for property owners to keep stream beds clean?
- Lives at 7th and Pleasant and thinks that street conveyance is a good idea. With some work on 7th, a lot of the damage could have been avoided. East side was severely damaged. Could make a difference in the future with better street conveyance.

Gregory Canyon Creek Open House Comments: June 12, 2014

Name	Address	flooding problems	suggestions	dedicate easement	comments
Charlotte Smokler	742 Marine St.	My entire lawn, front and back, was flooded.		I would need more details . My back yard has beautiful trees. I would hate to see them uprooted. But I need more details what an easement would involve.	

Online Comments Received June to October 2014

name	address	flooding problems	suggestions	dedicate easement	comments
Eric Cornell	745 University Ave.	<p>1. There was extensive flooding at the entrance to the culvert at the northeast corner of our property (745 University Ave.) The water overtopped the culvert opening and flowed, swift and deep, over the surface, off in the direction of 8th and Marine. □</p> <p>2. There was water streaming over the surface along the property line that runs along the west side of our property, between our house and our neighbors to the west. □</p> <p>3. There was a lot of water running along University Ave and the adjacent sidewalk in front (south) of our house, flowing east. As it passed our house it turned left (north) and flowed over the property of our neighbor to the east, Stewart Machle, and then along his foundation, damaging his yard and his house.</p>	My main concern is that mitigation should proceed from Boulder Creek up, and not from Chautauqua Meadows down. If you enlarge a bunch of culverts and broaden a bunch of channels upstream from University Ave before you do that for University Ave and downstream, the flood will hit the culvert under University Ave with explosive force and could cause major structural damage or loss of life in the houses nearby.	yes	I would want to see the plan before dedicating the easement, but I am very open to the idea.
H R Totten	633 College Ave, Boulder, CO 80302	I witnessed Gregory Creek at both Pennsylvania and College Ave... What a world of difference between the design of the two waterways... The people who built the College Bridge in the 40's had it ""right""... wide enough to not accumulate debris (would snap almost anything spanning the opening). High enough to handle all that came at it with room to spare (almost bank to bank in the channel)... At Pennsylvania, the two culverts simply collected debris and ""self destructed"". (Kudos to the engineers of days past for the College Ave bridge. Too bad someone paved over the original storm drain within in the structure though)... Just an observation which you may wish to ponder... Thanks for all you do and for all the hard work! Hal	I think you have plenty to do without additions...	no	
Keith L Pearen	637 Pennsylvania Ave	Pennsylvania Avenue and 7th street culverts were problem areas during past flood events.	Pennsylvania Ave pedestrian bridge.	yes	If flood improvements bring my house out of FEMA 100yr floodplain.

Jean Dubofsky	1000 Rosehill Dr.	The Sept. flood and all of your maps come along the bottom of our driveway. During the flood, the city diverted water down 6th St. and onto Rosehill Dr. This flooded some of the houses below us on Rosehill. I walked to 6th and Euclid and told the bulldozer driver that his efforts to prevent so much water going along Gregory Creek were creating additional problems along Rosehill. He didn't know what to do other than what he'd been told to do.			
Charles Corfield	1366 Seventh St.				Please pass on my thanks (to Jerry Weitzel amongst others) for the recent repairs to the alley on the south side of my house. The new entry across the sidewalk and the layer of blacktop look great.
Kirk Watson	828 University	Shallow flooding < 12" during event.	YES!!! <input type="checkbox"/> Nowhere in this study does it indicate an analysis of the predictive nature of the model and the REALITY of what happened during the flood event. Most residents could indicate depths of water during the flood at maximum height and approximate times. Didn't you ask to SEE IF THE MODEL WAS CORRECT??? This is a waste of money unless correlated with reality. I cannot believe the statement on pg.4: <input type="checkbox"/> ""No other changes were made to the baseline model to create the existing conditions HEC-RAS model for the purpose of this analysis.""	no	You should check to see if neighbors have increased the elevation of their property since the 1987 mapping to see if they increase or decrease risk of property damage to neighbors. Since the flood I notice flood walls being erected. What is that going to do to the model?
Paul Shankman	704 pleasant	7th near pleasant	Enlarge the culvert, and reshape 7th so water flows down the middle of the road, not just to the east side.	maybe depending on easement plans	

Online Comments Received October 2014 to February 2015

name	address	open house comments	suggestions	dedicate easement	comments
Julia Wrapp	932 Arapahoe, boulder, CO. 80302	I missed the open house but would request consideration of Gregory creek flowing out of its banks, running down 9th street, flowing into the historic church property (law office at 9th / Arapahoe) collections in the NE corner of the parking lot and then flooding 932 arapahoe		yes	It would be nice if the city encouraged neighbors to work together on mitigation issues. My neighbors will not even speak to me concerning this ongoing flood problem generated from drainage issues in their parking lot. <input type="checkbox"/>

Online Comments Received March 2015 to April 2015

name	address	Support Draft Plan	Draft Plan Comments	Other Improvements	Comments on Specific Improvements
Rebecca J. Roser	1228 7th St.	yes	We attended the open house on March 30, and appreciated the opportunity to talk with staff about the draft proposal. Since my home is next to the Anderson Ditch, I support making that a pipeline, running below ground. During the flood, it filled to the top with silt next to my home.	1. Bury overhead lines along 7th St. which would also prevent downed lines in big snow storms. 2. Raise the retaining wall in the Flatirons School parking lot, north side next to my property.	I would be pleased to discuss sharing costs of retaining wall (or solid fencing) of the school parking lot on the property line.

Gregory Creek Channel and Culvert Improvements at Euclid Avenue

In the aftermath of the September 2013 flood, we very much appreciate the City of Boulder's concern, prompt attention, and devotion of staff resources to developing alternative ways to alleviate future flooding along existing channels and crossings along Gregory Creek.

As more detailed designs of these mitigation efforts evolve, we hope the City project team will be open to our communication, suggestions, and feedback as "stakeholders" in the design outcomes. Design professionals ourselves, we understand the project team will be required to meet both budgets and timelines. That said, we request the City project team give the recommended design outcomes that follow serious consideration. We are making --and will make--every effort to keep these and future suggestions reasonable. We hope the project team will respond to us regarding our recommendations, subsequently consider our timely feedback, and be open to considering our possible alternative recommendations on various specific issues.

The recommendations that follow arise from our concern that a number of the project team's February 13 Revised Alternatives Memo and Figures show significant proposed alterations to both the channel that runs through our back yard as well as the culvert beneath Euclid Avenue that is immediately adjacent to our back yard. Both are in full view of our large, west-facing living room windows. So, we do indeed have a stake in how this proposed intervention turns out, as it will significantly influence the character of our immediate living area.

The ultimate location and plan layout of the Euclid Avenue culvert enhancements will have impacts not only on their cost, but will also aesthetically impact adjacent properties as well as the character of the street itself. The arrangement of inlets and wing walls will affect the survival probability of important mature trees that currently exist on both the public ROW (as part of the street tree inventory) as well as our property.

Additionally, we have concerns about the nature of the "max channel grading" recommended for the portion of Gregory Creek channel that runs through the mature wooded area of our immediate backyard property. This particular intervention could have deleterious effects on the root systems of these existing trees that could result in their degradation and ultimate loss. We walked the site with an arborist, whose review and comments can be found on the last sheet of this document, page 14. That said, we think there are opportunities worth discussing for channel enhancement to the north and west of these mature trees.

The following pages show specific plan layouts based on the project team's proposed culvert sizes as shown in the February 13, 2015 Revised Alternatives Figures. The impacts of these different layouts are indicated in red in the plan views. Additionally, we have illustrated the visual impacts of some of the possible culvert layouts as seen from our property and Euclid Avenue.

*Ellen Burgess
Michael Doyle*
997 Sixth Street
720-470-7754
med2347@gmail.com

Summary of Our Requests for Proposed Culvert Improvements

Establish a contact person:

Establish a *knowledgeable* contact person *on the design team* with whom property owners can communicate questions and concerns during design, construction, and post-construction.

Inclusive design review process:

Establish a design review process with private property owner(s) that (a) allows sufficient time for owners to consider and discuss design approach(es) with design team as well as (b) the opportunity to suggest reasonable design revisions or alternative approaches

Preserve valued and mature trees:

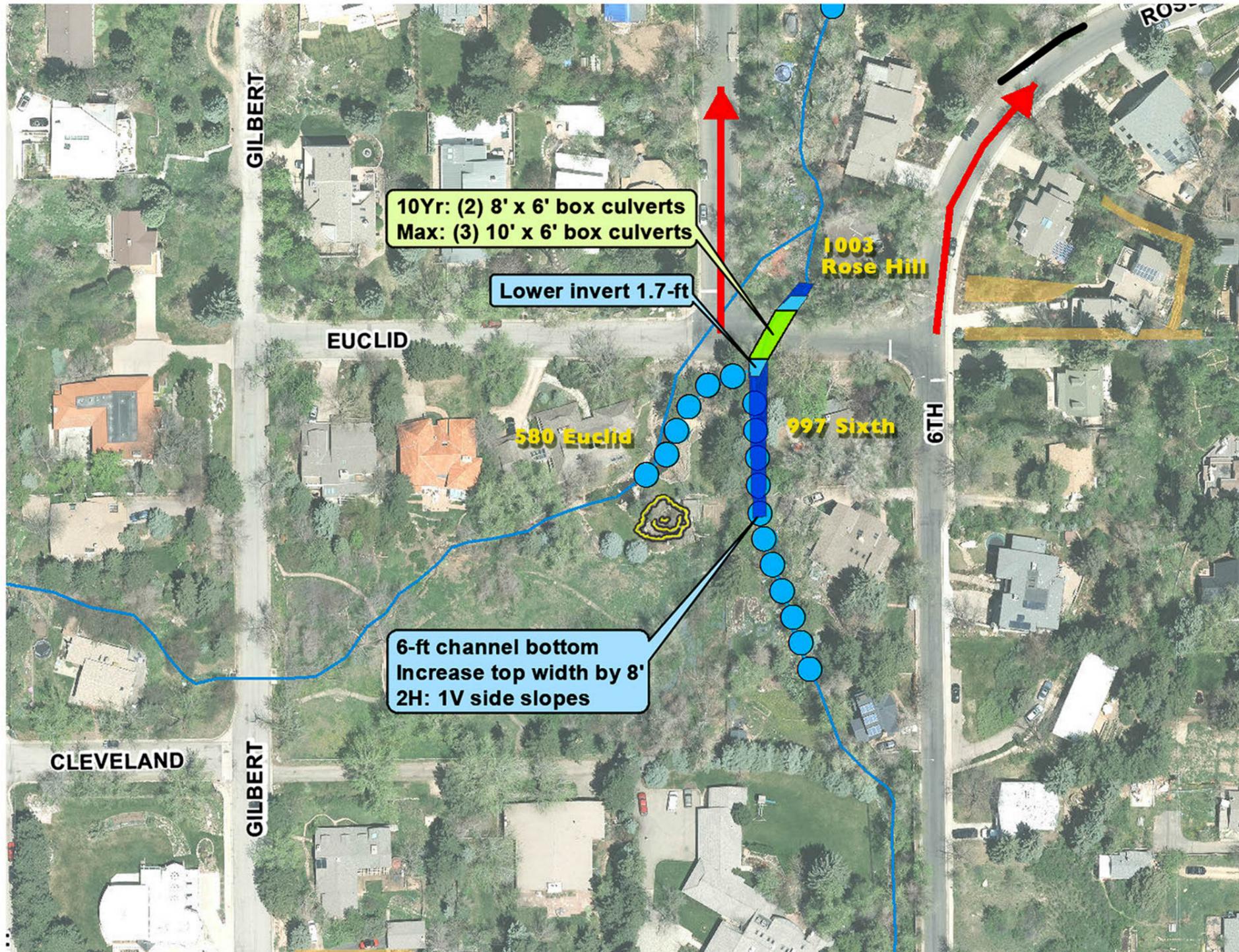
Create design(s) and establish limits-of-work that ensure the survival and vitality of indicated valued trees on both private property as well as the city rights-of-way (see sheets 4, 5, 6 and 8)

Approach to channel and catchment work:

Establish culvert components, catchment development, and channel enhancements on city right-of-way. Any design and work limits of transition to creek channel on private property to be discussed and established with property owner. An execution of proposed grades in both public ROW and on private property that blend harmoniously with existing grades to create a more "natural" looking channel/catchment area.

Use architectural finishes that acknowledge context:

Utilize recommended concrete color admixture for all exposed concrete surfaces. Further, use a natural stone veneer on large, exposed surfaces (wing walls, crowns, balustrades, etc.) that is the same color mix and size as the indigenous stone walls and residential applications nearby (see sheets 7, 10, 12, and 13)



LEGEND

- Existing Trash Rack
- Culvert Improvements
- Overflow Path
- Street Improvements
- 10Yr Channel Grading
- Max Channel Grading
- Channel Improvements
- Potential Storm Inlet
- Potential Sediment Trap
- Existing Easements
- Creek

Notes:

1. Culvert dimensions are width x height (span x rise)

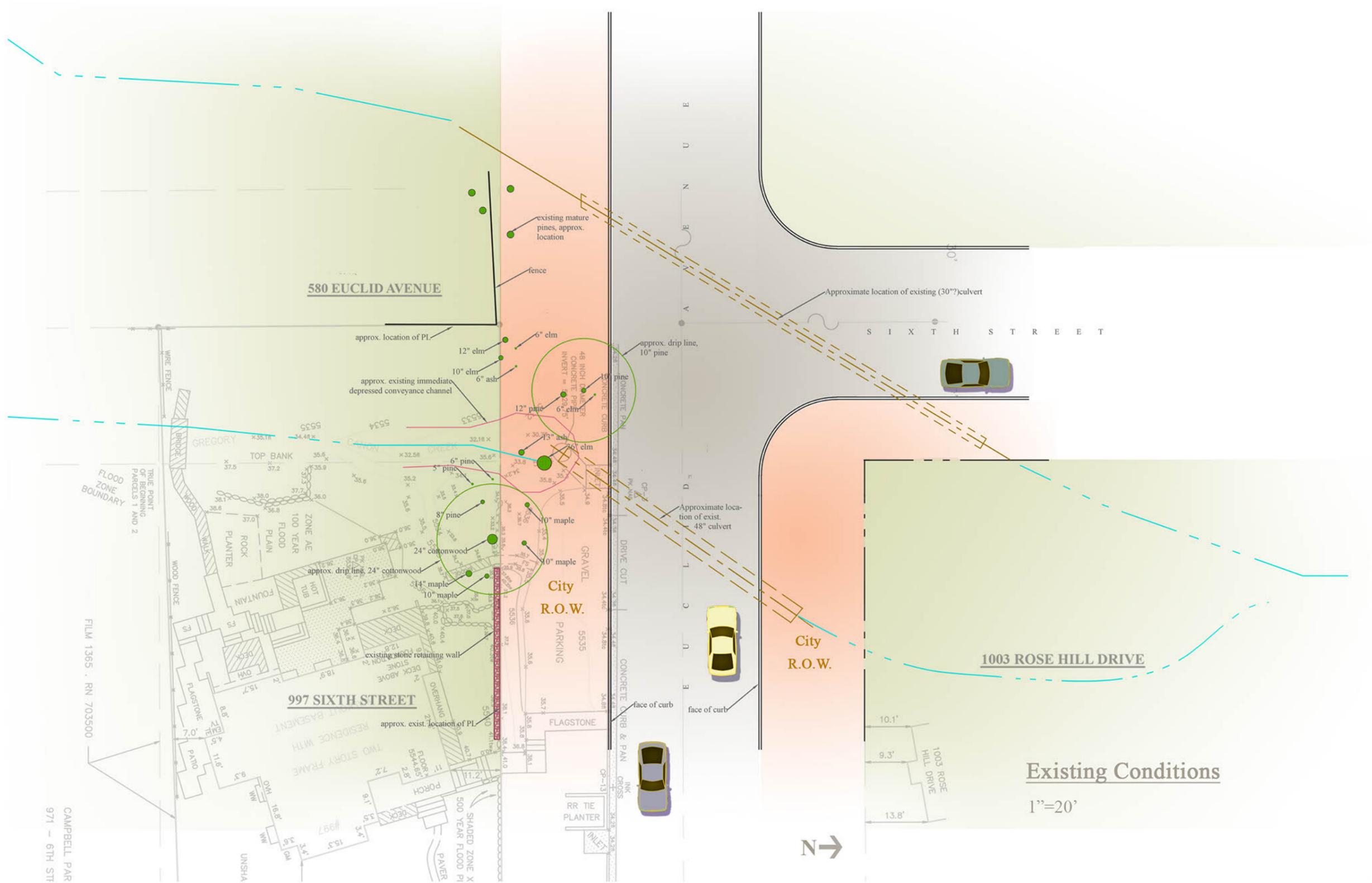
CALLOUT LEGEND

- Infrastructure Improvement
- Channel Improvement



Proposed Modifications

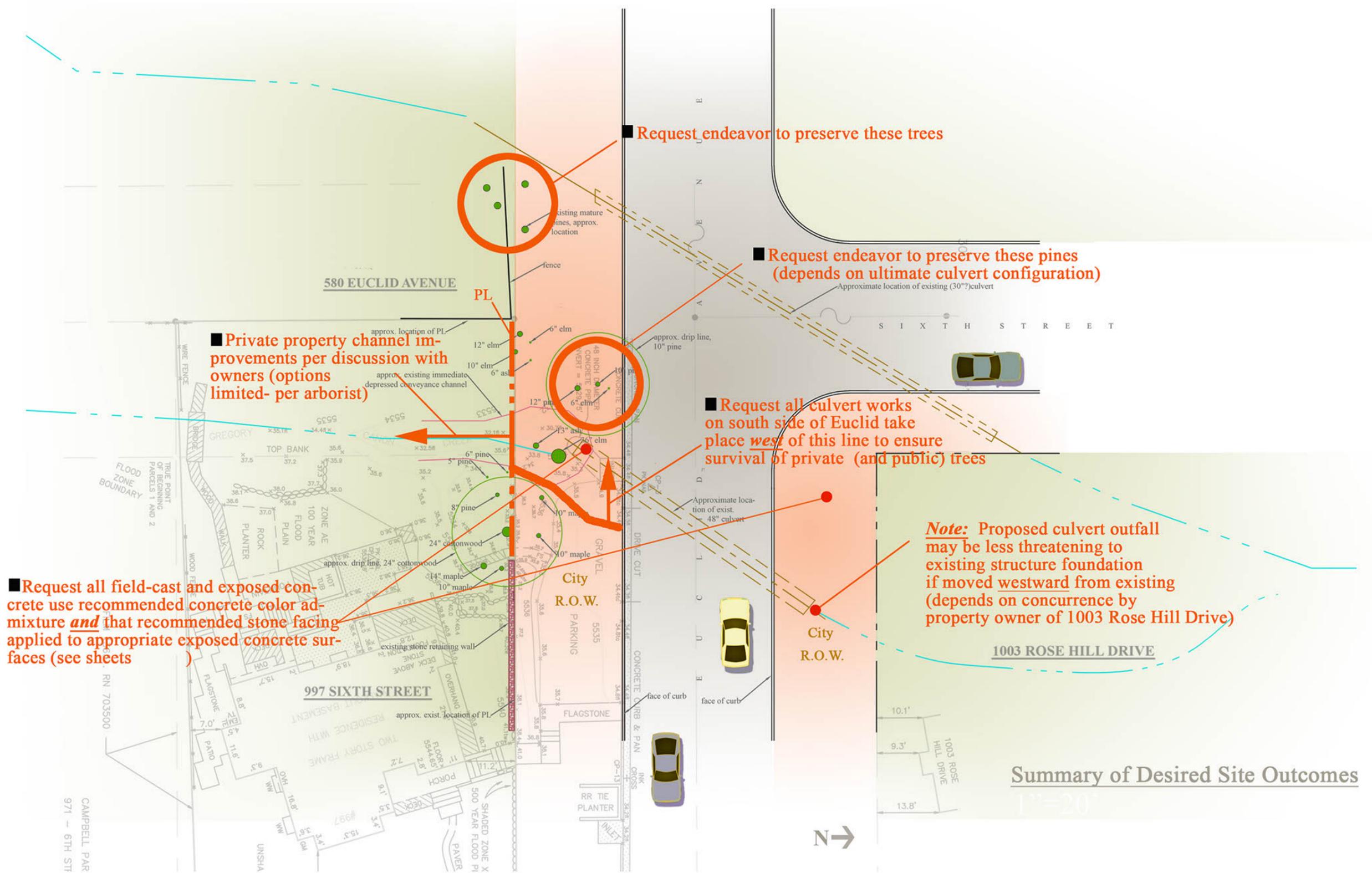
Note: This image and legend excerpted from Feb. 13, 2015 Revised Alternatives Figures by City of Boulder [addresses added by this author]



Existing Conditions

1"=20'





Request endeavor to preserve these trees

Request endeavor to preserve these pines (depends on ultimate culvert configuration)

Private property channel improvements per discussion with owners (options limited- per arborist)

Request all culvert works on south side of Euclid take place west of this line to ensure survival of private (and public) trees

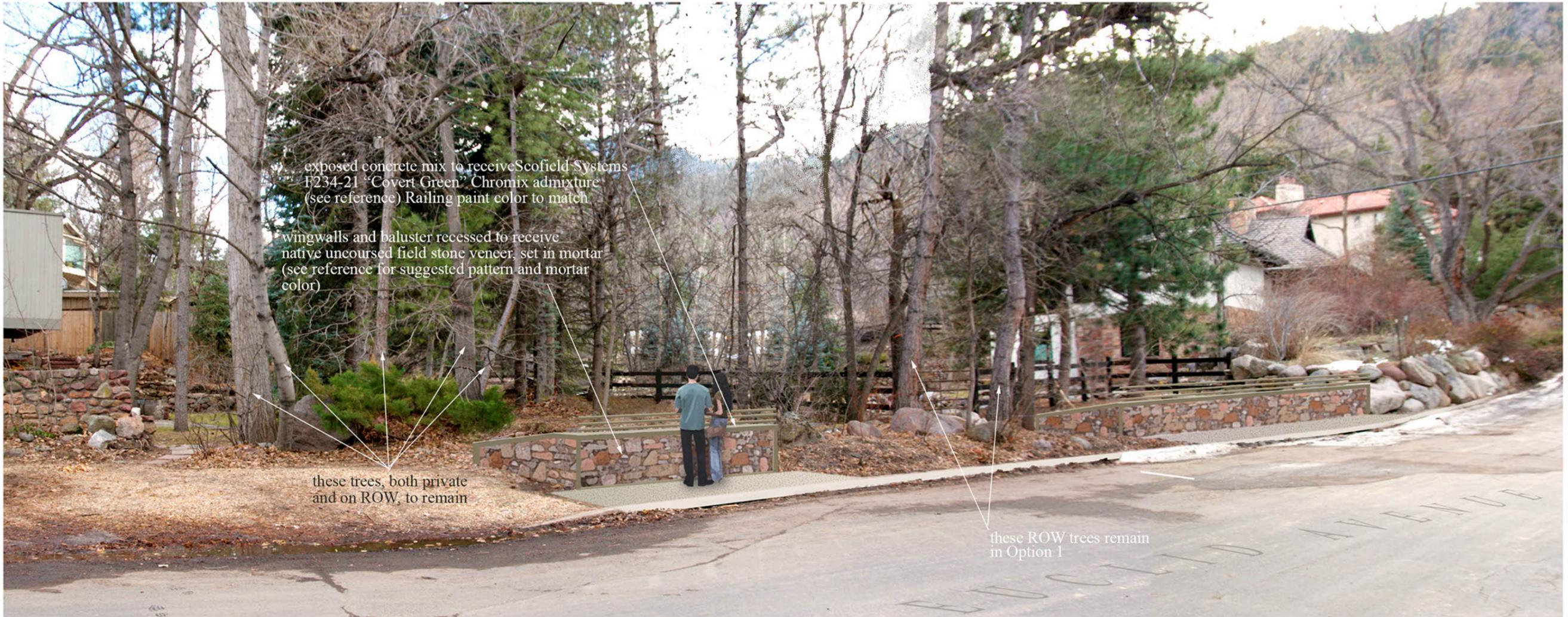
Request all field-cast and exposed concrete use recommended concrete color admixture and that recommended stone facing applied to appropriate exposed concrete surfaces (see sheets)

Note: Proposed culvert outfall may be less threatening to existing structure foundation if moved westward from existing (depends on concurrence by property owner of 1003 Rose Hill Drive)

Summary of Desired Site Outcomes



Existing View looking Southwest on Euclid Avenue



View of Option 1 (Split 8' Culverts) looking Southwest from Euclid Avenue
(other options would have similar streetside finishes)



Existing View looking Northwest from 997 Sixth Street



exposed concrete mix to receive Scofield Systems F234-21 "Covert Green" Chromix admixture (see reference) Railing paint color to match

wingwalls and crown recessed to receive native uncoursed field stone veneer, set in mortar (see reference for suggested pattern and mortar color)

existing conveyance channel *could* be revised per plan upon discussion with property owners; seed with indigenous grasses

Proposed View of Option 2 (16' Culvert) from 997 Sixth Street



Existing View looking North from 997 Sixth Street Property



Proposed View of Option 2 (16' Culvert) looking from 997 Sixth Street Property (finishes for other options would be similar)

COLOR CHART A- 92014NS

Blend into the natural environment with ALL NEW CHROMIX® Admixtures for Color-Conditioned® Concrete

Naturescapes™

F233-6 Carlsbad Canyon	F234-21 Covert Green	F235-29 Shadow Gray
F236-25 Juniper Green	F237-41 Shale Green	F238-26 Sudan Brown
F239-25 Beetle	F240-32 Yuma Green	F241-19 Carob Brown

For professional use only.

The colors depicted on this color card were developed to complement the colors on the USD01 BLM Standard Environmental Color Chart CC-001: June 2008.

Scofield recommends that CHROMIX® Admixtures for Color-Conditioned® Concrete be sealed with SCOFIELD Cureseal-W™ Clear Concrete Sealer or a compatible Scofield sealer. Concrete should be batched and placed in accordance with Tech-Data Bulletins.

Available in powder form only.

Concrete color is altered by many factors, including cement and aggregate color, slump, finishing practices, and curing method. Using the contemplated materials and construction techniques, representative samples should be cast for approval, especially when exact color matching is important.

SCOFIELD SYSTEMS
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Recommend F234-21 “Covert Green,” circled above

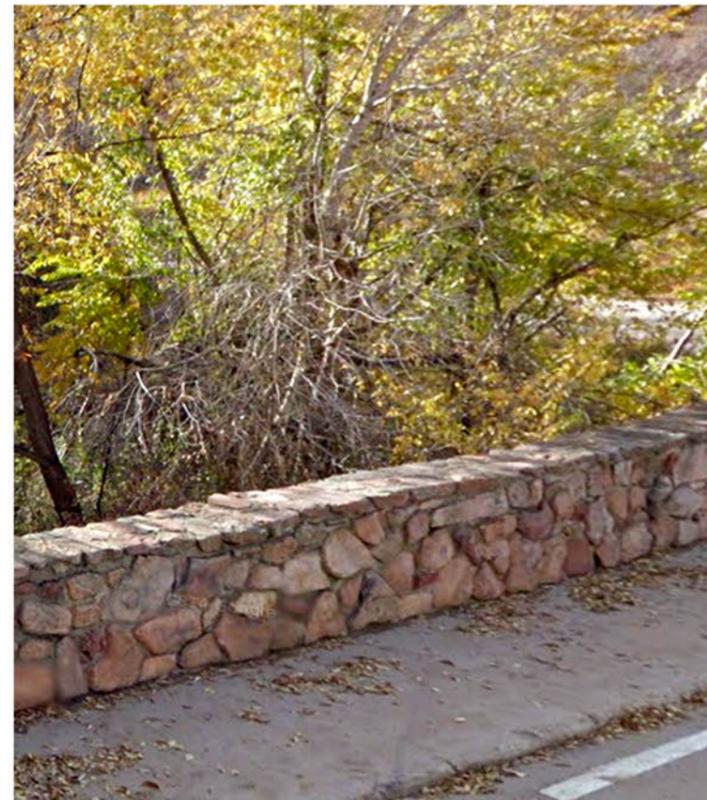
Note: We request this proposed intervention on Gregory Creek and the neighborhood use finishes that help to mitigate its visual impacts and relate it to its context. To that end, we recommend using a color admixture for exposed concrete surfaces and indigenous uncoursed native fieldstone veneer similar in size and shape to the examples shown here



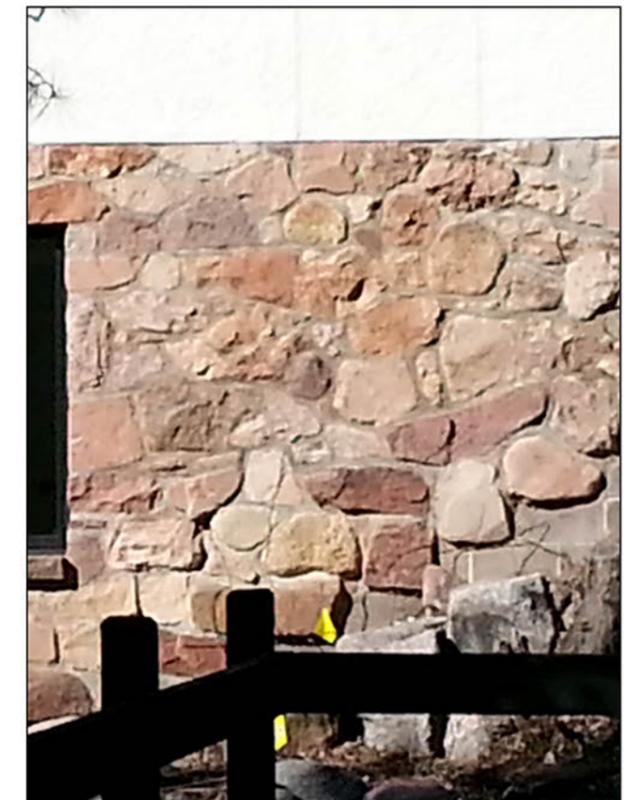
Street wall at 997 Sixth Street



Residence at 971 Sixth Street



Balustrade at Baseline Road over Gregory Creek



Residence at 580 Euclid Avenue

Requested Finishes at Culvert : Crowns, Balustrades, and Wing Walls

Tree Preservation Recommendations for the Doyle/Burgess Back Yard, 997 6th St., Boulder

Before discussing the specifics of tree preservation on the site, I am including a short description and discussion of the types of risks that construction generally poses for trees on a site. There are three ways in which projects commonly damage trees:

1) Roots get severed or compromised. This impacts trees in two ways, which are in turn related to the two basic functions of roots. The first is mechanical: They serve to anchor trees in the earth. Roots mainly act in tension in this respect; so, the removal of roots on one side of a tree increases the risk that it will fall in the opposite direction. Tree roots generally are found in the top foot or two of soil. The likelihood of a tree falling due to severed roots increases the closer the damage gets to the trunk. Arborists use a rule of thumb for distance from the trunk at which roots can safely be cut on one side of a tree: 5 times the trunk's diameter distance from the trunk. However, in our local weather environment, where West winds often measure above 100 mph, this rule must be disregarded. I have looked at a tree that blew over soon after its West roots were cut at a distance of at least 15 times trunk diameter.

The Second negative impact on trees due to root cutting has to do with their role in drawing water and elements from the soil, and conveying them to other parts of the system. Severing roots deprives trees of water and essential elements, and causes stress, which can lead to infestation, disease, and death. Again, the rule of thumb for cutting on one side of the tree is 5 times diameter. But, again, this rule of thumb must be discarded when cutting on the West sides of trees in the Front Range.

2) Soil becomes compacted. Soil compaction can be thought of as a squeezing of oxygen out of the pore spaces between the grains. Trees need to absorb oxygen through their roots, so that they can metabolize the sugars they manufacture. In other words, they can't burn their own stored energy without soil oxygen, and they become stressed relative to the extent of compaction.

3) Machines batter trunks, causing wounds and decay. Of the three, this is the easiest to conceptualize, since the damage is right in front of our eyes, but is also perhaps the hardest to control. Operators are frequently, if not usually, unable to be vigilant at all times about the trunks of trees, especially when feeling time pressure, or when fatigued, etc. Suffice it to say, most construction in areas with trees results in wounds to trunks. Wounds result in decay, and decay causes mechanical weakness in wood, as well as stress in tree systems. Decaying trees eventually pose a safety risk to people and property.

The proposed culvert and stream-enlarging project West of the Doyle/Burgess house threatens their trees in all three ways discussed above. First and foremost, the proposed widening and deepening of

the stream bed, and the construction of concrete "wing walls" to funnel flood waters into the culvert, threatens the roots, and therefore the stability, of several of their trees, especially, due to prevailing West winds, those located on the East side of the stream. The west roots of these Cottonwoods, Norway maples and Spruces all presumably reach well beyond their trees' drip lines on that side. Since they can find most everything they seek, including water, near the surface in this intermittent stream environment, the west roots of these trees are almost certainly as near or nearer the surface than are those of the average tree.

It should be noted that the Colorado Blue Spruce, despite its status as State Tree in this very windy state, is not wind tolerant. It evolved in thick stands that are located in valley bottoms, out of the wind; trees in natural Spruce groves absorb wind as a group, rather than individually, and individual trees graft their roots onto one another, so that most are "pinned down" by their neighbors' roots. In Front Range urban environments, these trees usually lack the protection of the group, and frequently blow over without any "help" from humans cutting their roots. Any practicing arborist in Boulder can attest to this phenomenon.

My recommendation is that, to minimize root severing, there be no stream bed excavation on the East side of Gregory Creek behind the house. Further, the proposed wing walls should be positioned radially, rather than tangentially, to the trunks of trees. And, to protect trees on the west side of the stream, widening and deepening should occur at a distance of 5 times diameter from any tree on that side.

To avoid soil compaction in the yard, widening and deepening of the stream should be done by hand, rather than with heavy machinery. If heavy machinery is used, it should access the yard over, and be stationed on, a layer of mulch at least 12 inches deep, to cushion the load.

Finally, to protect them, the trunks of trees near any machinery should be wrapped twice, to a height of 8 feet where possible, with snow fencing.

I hope this has been helpful; please feel free to contact me with any questions.

Fred A Berkelhammer
President, Berkelhammer Tree Experts, Inc.
ISA Certified Arborist # RM0102
303-440-1233 berkeltree@earthlink.net

From: [Pearen, Keith L](#)
To: [Knapp, Katie](#)
Subject: Gregory Canyon Alternatives Analysis
Date: Tuesday, October 21, 2014 3:12:20 PM

Katie,

First, great job last night. Well thought out presentation. I think your line of thinking on how to go about this project is spot on! I think your approach to get the WRAB involved early and often is great. Totally agree that it is not feasible to upgrade all for 100yr flows and a 10yr approach is reasonable.

My impression, the culvert widths with 10yr flow and 20% blockage are still large (14' to 20') relative to the stream bed (12' max) and Sept '13 demonstrated need.

I had a few more thoughts after listening to the full discussion last night:

First, Is it possible to update the % blockage for some of the existing structures (Table 5 and 'Improvements in Public Right of Way' Table) that performed adequately in the Sept '13 flood? It makes little sense to prioritize those structures that performed well in Sept '13. If we revise the Blockage % down from 50% to 20% or 0% can they (Aurora, College, Pleasant, University, 8th, Marine, Arapahoe) be shown to accommodate the 10 year flow? If we can show them by analysis to be good for 10yr, then perhaps money can be focused elsewhere.

Second, it makes sense to Utilize a phased approach to Gregory Creek Improvements:

- Phase 0: Obtain easements that are necessary for Phase 1 improvements
 - Obtain easements for:
 - Private Drive at Old Baseline
 - Private Drive at NW Corner of Willowbrook Cul-de-sac
 - Drive to School North of Arapahoe
 - Have easements obtained prior to WRAB reconvene – Project is a non-starter without them

- Phase 1: High Need improvements in public right of way and in easements obtained in Phase 0
 - Focus on structures that are unable to convey 10yr flow and experienced issues during the Sept '13 event
 - Private Drive at Old Baseline
 - Willowbrook improvements (culvert and regrade)
 - Euclid Culvert
 - Pennsylvania Road Removal (Pedestrian Bridge)
 - 7th Avenue
 - Drive to School North of Arapahoe

- The following were all OK during Sept'13 (Aurora, College, Pleasant, University, 8th, Marine, Arapahoe)
- Phase 2: Street Conveyance Measures
 - Implement proposed street conveyance measures
 - Willowbrook street mods and new pipe
 - 6th street from Euclid down (or Rosehill to 7th as shown in the mini-master, but this makes less sense because of flow combination with 7th at Anderson Ditch) Either way, Euclid should be identified as a creek to surface street transition. This is not shown in the CH2M report and should be added.
 - 7th street from Anderson Ditch down
 - 8th street from Pleasant down (Questionable cost/benefit with numerous major changes)
- Phase 3: Debris traps, Channel Enhancements, Property Acquisition and Re-mapping
 - Obtain easements for channel enhancements in areas that will not convey 10yr flow
 - Install debris traps
 - Bank stabilization
 - Property acquisition for High Hazard Properties
 - Re-Mapping

Thanks,
Keith

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From: [Keith Pearen](#)
To: [Knapp, Katie](#)
Subject: Re: Gregory Alternatives
Date: Thursday, October 09, 2014 2:27:32 PM

Katie,

Thanks again for keeping us in the loops as this process progresses. I had a chance to read the report and have some comments in addition to your comment on the proposed removal of Pennsylvania Ave culvert (thanks!):

1. Page 1, Paragraph 1: Gregory creek is identified as a "left bank" tributary of Boulder Creek. Should be right or south. These things are assigned looking downstream.
2. Table 3: the location of "1/3 of discharge at Aurora Ave, with 2/3 placed on the local highpoint" makes no sense.
3. Table 3: Should confluence with Boulder creek be included in this table (2092 cfs with 100 yr return interval)?
4. Table 3: Consider a more readable format with location in the first column and return intervals of 2, 5, 10, 50 and 100 as columns 2 - 6.
5. Page 3, Hydraulics Section: Mixed tense and "deliverable for the this analysis." makes no sense.
6. General: LOMR is never defined.
7. Table 8: Good list of potential improvements. No indication that they were evaluated at any point in this report. Are some recommended? All?
8. Page 7: "Channel Geometry between Euclid and College is unable to convey the 10 – year storm event without causing infrastructure damage." Really? Haven't seen a model, but this seems like one of the larger channel sections. Surprising Conclusion! This is not consistent with Sept '13 observations.
9. Figures 5 - 7: Red, green, and blue boxes mean? CH2M Recommendations?
10. Figures 5 - 8: Potential improvements listed in Table 8 are largely ignored. If not included, why not? Were they evaluated?
11. Figure 5: "Install a 23' x 6' box culvert" under 7th street near flagstaff Elementary is inconsistent with physical geometry of site. Existing culvert is at least 100' in length.
12. Figures 6 and 7: Please remove the improvements that were already proposed in Figure 5 (Option 1) from these figures.
13. Figure 6: "5-ft channel bottom 4.5-ft depth 2H: 1V side slopes" proposed between Euclid and College already exists.
14. Table 2a and 2b: Map needed to correlate river stations used in the tabular data.
15. Table 2c and 2d: Discussion of the "Lateral Weir" seems to be missing entirely from text. These tables are never referenced in text.
16. Table 10: Is it possible to prioritize these Culvert Improvements or determine an order of operation in which these are to be done so the least capacity conveyance is always highest priority?

I know it is an initial draft, but I would expect a little better from CH2M (I used to work for them)...

Thanks again for keeping us in the loop,

Keith

On Wed, Oct 8, 2014 at 4:36 PM, Knapp, Katie <KnappK@bouldercolorado.gov> wrote:

Hi Keith,

There is a link to a “very” draft alternatives analysis on the upper right corner of the project website. I have already provided the engineering consultant with a list of comments, so this will be revised prior to the meeting. One of my comments was to include the pedestrian bridge option, which they do not currently show. Please feel free to provide comments at any time or at the meeting.

Katie

From: Keith Pearen [REDACTED]
Sent: Friday, October 03, 2014 12:24 PM
To: Knapp, Katie
Subject: Gregory Alternatives

Katie,

Is there something that shows the potential alternatives for Gregory Creek that we can see prior to the meeting on Oct 20th? I checked the website and it has been updated to show the Oct. 20th meeting, but didn't see any new proposed alternative.

Thanks,

Keith

From: [Laz Nemeth](#)
To: [Knapp, Katie](#)
Subject: Gregory creek
Date: Tuesday, October 14, 2014 1:18:55 PM

You want to put in multiple 30 feet by 6 feet box culverts?
the concrete really ugly ones?

laz

From: [Laz Nemeth](#)
To: [Knapp, Katie](#)
Subject: Re: Gregory creek
Date: Tuesday, October 14, 2014 1:28:53 PM

oh yeah and please explain how the math on the last table makes sense.

specifically 7th, pen, college and euclid

culverts of multiple different sizes are claiming 100-50% blockage, to me it reads like enron accounting.

laz

From: [Helen El Mallakh](#)
To: [Knapp, Katie](#)
Cc: [Dean, Kristin](#)
Subject: Re: Incorrect reporting of Willowbrook Rd Culvert Dimensions on the Alternative Analysis Memorandum
Date: Friday, January 23, 2015 12:36:26 PM

Hi Katie,

I think that you are wrong about the width times height. That may be what was supposed to be done in this memorandum, but these numbers make no sense. So I want to make sure that I understand this recommendation for Willowbrook Rd., the recommendation is for a culvert 18 feet wide by 7 feet high? That is not physically possible given where the home on the intake portion of the culvert would be. Moreover, the recommendation is for a 40-foot wide culvert at 6th and Aurora? There is utterly no need for these recommendations to be even brought forward.

This is completely questionable. For the Willowbrook and Aurora culverts, the culverts far exceed the width of the creek beds on the properties.

Where does Gregory Creek even approach 40-feet in width inside the city limits? No where.

Whether these are low probability projects or not- they aren't feasible without absolutely ruining people's property. The fact that no new hydrological analysis was undertaken is also undermining the memorandum's recommendations.

What is so disturbing is that there are areas along Gregory Creek that are in DIRE need of flood control improvements. These neighborhoods want projects. We didn't need a larger culvert during the last flood at Willowbrook. We needed a different trash rack, but what we really needed was for the city to remove the trash rack about 24 hours before it did.

Helen El Mallakh
850 Willowbrook Rd.

On Jan 23, 2015, at 8:59 AM, Knapp, Katie <KnappK@bouldercolorado.gov> wrote:

Hi Helen,

The call-outs do not indicate past projects, but what could be constructed at each location. The culvert dimensions are width x height, and do not show lengths. Because there have already been improvements constructed at Willowbrook and Aurora, I don't anticipate that improvements at those locations will be high priorities. The next submittal from CH2MHill will include benefit/cost ratios that will help us come up with a recommended plan.

Katie

From: Helen El Mallakh [<mailto:elmallak@swbell.net>]

Sent: Friday, January 23, 2015 4:49 AM

To: Knapp, Katie; Dean, Kristin

Subject: Incorrect reporting of Willowbrook Rd Culvert Dimensions on the Alternative Analysis Memorandum

Hi Katie and Kristin

The culvert on Willowbrook is already 18' by 9' (length by width) and it is 5' in height. So I believe that a mistake was made on figure 5 (3 of 3) page 17 which has written "18' by 7' box culvert" . Suggested change: culvert dimensions from "18' by 7'" to "18' by 9'"

I would assume that this is a mistake and that the suggestion is not to place a smaller culvert in place on Willowbrook.

I think that there's also a problem with the legend and that the red-bordered text boxes are projects that have already taken place. You will find that the culvert at Aurora and 6th street "Install 40' by 6' Box Culvert" was installed in 1995/96. The legend is not clear enough and the wording could confuse the public. I would recommend using "installed" instead of "install." Perhaps it would be useful to indicate to the public that these were past flood upgrades.

Thanks

Helen El Mallakh
850 Willowbrook Rd.
Boulder, CO 80302
303-442-4014

From: [Helen El Mallakh](#)
To: [Knapp, Katie](#)
Cc: [Dean, Kristin](#)
Subject: Re: Easement at 850 Willowbrook Road
Date: Thursday, January 22, 2015 5:08:43 PM

Hi Katie

Last question for you and Kristin is on page 17, under Category 1 of Channel and Facility Maintenance, there are two text boxes on our property: "Channel Grading to Accommodate Larger Culvert" and "18' by 7' Culvert box." Does this mean that we would be getting a new larger culvert on our property, because I think that our existing culvert is 18' by 7'? Also, our property already have some of the deepest channel grading along Gregory Creek. Can you guys please explain this? I think it might have been what took place in the 1996/97 Flood Control?

Thanks
Helen

On Thursday, January 22, 2015 4:08 PM, "Knapp, Katie" <KnappK@bouldercolorado.gov> wrote:

Hi Helen;

I'm looking into your easement question, but I suspect that the temporary easement was incorrectly shown as an existing easement. Thanks for bringing that to my attention. If this is the case we will see that it is corrected. If that is not the case, I will let you know.

I will ask our consultants to include a legend for the maps in the next submittal. All of the call-outs indicate proposed improvements. The green call-outs were for items considered maintenance/repairs or items to facilitate maintenance, such as debris traps. The red items were for improvements that would help accommodate flood waters.

Assuming there is no existing easement, the city has access to the edge of the right-of-way, shown on the attached plan in red. Although, there is a provision for access during a declared disaster:

2-2.5-10. Authority to Enter a Property.

During the period of a declared disaster emergency, a city employee or authorized agent may enter onto or upon private property if the employee or authorized agent has reasonable grounds to believe that an emergency situation exists and that an entry on private property is required in order to protect life or minimize an imminent threat to property.

Sorry to hear you will be out of town when we are scheduled to meet. I appreciate your input and feedback.

Katie

From: Helen El Mallakh [mailto:elmallak@swbell.net]
Sent: Thursday, January 22, 2015 3:28 PM
To: Knapp, Katie
Cc: Dorothea H. El-Mallakh
Subject: Re: Easement at 850 Willowbrook Road

Hi Katie

After magnifying pages 20 and 23, I think the issue might be that the easement for the culvert was drawn too far out on these figures. But I may be wrong. Anyway, can you also clarify how many feet outside of the culvert the city automatically has access to on our property, that would be very helpful.

Helen

On Thursday, January 22, 2015 3:11 PM, Helen El Mallakh <elmallak@swbell.net> wrote:

Hi Katie

When I was reviewing the Gregory Creek Draft Alternative Analysis, I found that two of the figures have an easement marked out for our property at 850 Willowbrook Road, Boulder, CO 80302. You told us when we had work done in the spring of 2014 that there was no easement on the property; thus, we had to give the City of Boulder permission to clean out the culvert. Furthermore, you informed us that the easement was only a temporary one that was from the 1990s when there was the flood control project on Gregory Creek. On page 20 of the attached document (Figure 6 - 3 of 3) and on page 23 (Figure 7 - 3 of 3) it indicates an easement on the property. Can you clarify this for us and what type of easement that this is or are the figures incorrect.

Last, a recommendation for the draft alternative analysis: can your consultants give a legend of the figures so that we know what the inserted caption/text boxes mean that are in surrounded by green highlighting versus red. I believe that the green means the proposed alternatives, while the red is descriptions of past projects?

Thanks

Helen El Mallakh
850 Willowbrook Rd.
Boulder, CO 80302
303-442-4014

From: [Helen El Mallakh](#)
To: [Dean, Kristin](#); [Knapp, Katie](#)
Subject: Re: Credibility Issue with this process
Date: Wednesday, March 25, 2015 5:18:25 AM

Dear Kristin,

Regarding the Gregory Creek Feb. 13 Revised Alternative Analysis, the consultants still have not put in the HEC-RAS variables and their parameters that they used to make the suggestions on the culvert sizes. Can you please have them send these variables and parameters to me so we can have them for our neighborhood organization - even if they are not included in the analysis itself?

Also, the maps in the Feb. 13 Revised Alternative Figures are not drawn to scale in regards to the size of the culverts. This causes confusion and is misleading.

Lastly, given that so many of the sewer lines broke going into people's houses, there is no mention of what the city is doing related to this problem.

Regards

Helen El Mallakh
850 Willowbrook Rd.
Boulder, CO 80302
303-442-4014

On Friday, January 30, 2015 6:20 PM, Helen El Mallakh <elmallak@swbell.net> wrote:

Hi Kristin

Having used HEC-RAS, I find that the underlying variables and assumptions are critical. It is fundamentally driven -as is all modeling software - on the validity, scope, and rigor of the inputs. Since many of us have had to hire our own hydrologists, I think that in the memorandum the key variables, their parameters, underlying assumptions, and various cases/scenarios that were fed into the model should be listed. This information would be useful for our hydrologists. Moreover, the sediment assumptions are very important for this particular creek. This should not be very difficult to add to the updated report.

Thanks
Helen El Mallakh

On Friday, January 30, 2015 4:26 PM, "Dean, Kristin" <DeanK@bouldercolorado.gov> wrote:

Hello Helen,
The proposed culverts were modeled using the HEC-RAS floodplain analysis software, available on this website:
<http://www.hec.usace.army.mil/software/hec-ras/>

There is a significant amount of information that goes into the modeling. Are you interested

in reviewing the input files, or are there any specific variables that you would like us to provide?

Also, when you do return from travelling, we would be happy to meet with you

Best Regards,
Kristin Dean, AICP
Utilities Planner
City of Boulder, Public Works - Utilities
303.441.4289

From: Helen El Mallakh [mailto:elmallak@swbell.net]
Sent: Friday, January 30, 2015 5:01 AM
To: Dean, Kristin
Subject: Re: Credibility Issue with this process

Hi Kristin

I am traveling and am unable to meet. Can you please include the equations, variables, and assumptions used by CH2M Hill to determine their suggested culvert sizes in the next report.

Thanks

Helen El Mallakh
850 Willowbrook Rd.
Boulder, CO 80302

On Monday, January 26, 2015 9:58 AM, "Dean, Kristin" <DeanK@bouldercolorado.gov> wrote:

Hi Helen,
Perhaps it would be best if we set up a time to meet you at your property. Please let me know your availability over the next week or so and I would be happy to set that up.

Best Regards,
Kristin Dean, AICP
Utilities Planner
City of Boulder, Public Works - Utilities
303.441.4289

From: Helen El Mallakh [mailto:elmallak@swbell.net]
Sent: Saturday, January 24, 2015 7:21 AM
To: Knapp, Katie; Dean, Kristin
Subject: Credibility Issue with this process

Hi Katie and Kristin,

I did get Kristin's voice mail on Friday explaining that the numbers for the culverts on Willowbrook and Aurora are accurate as presented in the memorandum. This memorandum seems to be somewhat lacking in presenting an integrated plan, rather it is a "scatter-gun" approach of throwing out ideas lacking rationals and methodologies within a report filled with inaccuracies (such as easements). Moreover, there is a lack of an approach to even dealing with the sediment issues and the larger upstream issues of Gregory Creek on county property. Given what is missing and what is included in this report, I see this process as undermined in terms of credibility.

Helen El Mallakh
850 Willowbrook Rd.

From: [Helen El Mallakh](#)
To: [Knapp, Katie](#); [Dean, Kristin](#)
Subject: Engineers Preferred Alternative -new storm inlet in front of 850 Willowbrook Road
Date: Thursday, March 26, 2015 7:51:45 AM
Attachments: [1996-Willowbrook-Culvert-Replacement.pdf](#)

Dear Katie and Kristin

I just reviewed the Engineers Preferred Alternative for Gregory Creek. Please be advised that the location as drawn for the new storm inlet in front of 850 Willowbrook Rd. would interfere with our sewer line connection. In fact, the idea of a storm inlet in front of 850 Willowbrook Road was already evaluated and deemed as infeasible because of the sewer line issues in the 1996 Willowbrook Road Culvert Replacement project as part of flood control. Moreover, due to the somewhat odd connection angle with our sewer line coming into the city sewer line (due to the culvert and 1996 flood control project), there have been numerous problems, including its breaking in the 2013 flood event.

You should probably speak with public works as they have more detailed records of this including having to repair issues.

Regards

Helen El Mallakh
850 Willowbrook Rd.
Boulder, CO 80302
303-442-4014

From: [Helen El Mallakh](#)
To: [Knapp, Katie](#)
Cc: [Dean, Kristin](#)
Subject: Re: Engineers Preferred Alternative -new storm inlet in front of 850 Willowbrook Road
Date: Thursday, March 26, 2015 8:43:17 AM

Hi Katie and Kristin

I wanted to give you the contact at Public Works who had to fix our sewer line/inspect it. His name is David Garcia and his phone number is 303-441-3350. He can better explain the issues around the sewer line connection. I really would not want the city to do anything that would further compromise the sewer line connection unless David Garcia was consulted first.

Regards

Helen El Mallakh
850 Willowbrook Rd.
Boulder, CO 80302
303-442-4014

On Thursday, March 26, 2015 8:28 AM, "Knapp, Katie" <KnappK@bouldercolorado.gov> wrote:

Helen,

Thank you for this information. I will forward your email to CH2M Hill, our engineering consultant to make sure they are also aware of this issue. At this phase, the plan is very schematic. Utility conflicts will be evaluated with the development of the conceptual plans.

Katie

From: Helen El Mallakh [mailto:elmallak@swbell.net]
Sent: Thursday, March 26, 2015 7:52 AM
To: Knapp, Katie; Dean, Kristin
Subject: Engineers Preferred Alternative -new storm inlet in front of 850 Willowbrook Road

Dear Katie and Kristin

I just reviewed the Engineers Preferred Alternative for Gregory Creek. Please be advised that the location as drawn for the new storm inlet in front of 850 Willowbrook Rd. would interfere with our sewer line connection. In fact, the idea of a storm inlet in front of 850 Willowbrook Road was already evaluated and deemed as infeasible because of the sewer line issues in the 1996 Willowbrook Road Culvert Replacement project as part of flood control. Moreover, due to the somewhat odd connection angle with our sewer line coming into the city sewer line (due to the culvert and 1996 flood control project), there have been numerous problems, including its breaking in the 2013 flood event.

You should probably speak with public works as they have more detailed records of this including having to repair issues.

Regards

Helen El Mallakh

850 Willowbrook Rd.
Boulder, CO 80302
303-442-4014

From: [Helen El Mallakh](#)
To: [Dean, Kristin](#); [Knapp, Katie](#)
Subject: Re: Concerns regarding proposed storm inlets on Willowbrook Road Culvert - Gregory Creek Draft Staff Recommended Plan
Date: Monday, March 30, 2015 8:13:40 AM

As a follow up comment, I am not sure that when the storm inlet on the Willowbrook culvert was suggested it was realized that, in the event the storm inlet was plugged up, we would have a very difficult time getting out of our driveway with water pooling/flooding which would hinder vehicular exiting. This is based on how the storm inlet has been drawn on the draft staff recommendation. It may be that the storm inlet would not be as wide as indicated on your figure, however, staff does need to keep in mind the ability for property owners to be able to physically leave their homes (i.e., ingress and egress) in a flood by vehicle is critical. In fact, in this entire draft, there is not one other property besides 850 Willowbrook Road where the ingress/egress is potentially being hampered by a proposed flood control mechanism.

I would appreciate a written response clarifying the width of the proposed storm inlet in front of the 850 Willowbrook Road driveway and what you would do to minimize ingress/egress concerns along with our sewer line issues.

Regards

Helen and Dorothea El Mallakh
850 Willowbrook Road
Boulder, CO 80302
303-442-4014

On Monday, March 30, 2015 6:06 AM, Helen El Mallakh <elmallak@swbell.net> wrote:

I am writing you to express my opposition to and concerns regarding the two proposed storm inlets on the Willowbrook culvert (one to the west side of the culvert on 445 Christmas Tree and the other to east side of the culvert in front of my family's property at 850 Willowbrook Road) as outlined in the Draft-Staff Recommended Plan for Gregory Creek.

As I will most likely not be able to attend the meeting at Flatirons Elementary School this afternoon, I am offering my concerns to you both via email and cc'ing the owner of 445 Christmas Tree (Scott Pluzynski) on this email. The concerns expressed here are my own and I do not speak for the owner of 445 Christmas Tree. I would like this email to be entered into the "emails received - public comments."

(1) SEDIMENT & CARRYING CAPACITY CONCERNS: The idea of storm inlets located where staff is now proposing them was ruled out in the 1996 flood plan by engineers from the City of Boulder. That was because there were concerns about (a) adding greater sediment and debris into the culvert, which would reduce the culvert's

carrying capacity, (b) the belief that inlets located at these locations would fill with debris very quickly, and (c) by adding more water into the system at these locations, you'd have a greater for potential for water to "back up." There had been smaller storm inlets on these two properties before the 1996 flood control initiative so the engineers were aware of water flow issues.

(2) ENGINEERING PROBLEMS WITH EXISTING SEWER CONNECTIONS AND SEWER LINE BREAKS: A storm inlet on the eastern side of the culvert will be highly difficult to engineer due to the problems with the existing hook up of the 850 Willowbrook Road home sewer line to the city sewer line. Please speak with David Garcia in Public Works who can explain the challenges with this and problems that occurred during the last flood. Like other parts of the city, we experienced problems with the sewer line breaking so these issues are extremely relevant.

(3) INEFFECTIVE IN DIVERTING FLOOD WATERS OFF OF THE STREETS: The existing storm inlets on Willowbrook Road filled up very quickly (within hours of the flood) and were overall ineffective in carrying flood waters off of the streets. In addition, it took around 12 hours for Public Works to clean out the sediment from one of the storm inlets.

(4) POTENTIAL TO DO MORE HARM WITH LIMITED UPSIDE: Adding more sediment into the culvert area when we know that the area is already a debris trap really doesn't make a lot of sense. The driveway on 850 Willowbrook is made of gravel, which will easily and quickly fill up the inlet in a flood. While storm inlets are not particularly costly, there seems limited upside and the potential to do more harm.

(5) EASEMENT ISSUES: When the city first did this flood analysis, the consultant's memo had erroneously marked 850 Willowbrook as having an easement. That was the temporary easement from the 1996 flood control and not a permanent easement. While there probably are ways that the city could work around not having an easement on 850 Willowbrook to install a storm inlet, ultimately, the likelihood of the property owner on 850 Willowbrook granting another easement for a storm inlet to be constructed is extremely small. This lack of willingness is based on the fact that the city ran out of money in the 1996 flood control effort leaving large parts of the property on 850 Willowbrook destroyed and not burying the natural gas line as was promised to the homeowner in return for the loss of property due to the flood control effort and as documented in the city's own plans.

(6) FUNDS ARE BETTER SPENT ON OTHER PARTS OF GREGORY CREEK: Because the city's 1996 flood control project on Gregory Creek ran over budget and out of money far earlier than anticipated, other areas along the creek that were promised flood control improvements never received them. Nearly two decades later, it seems that it would be best to spend the money on areas such as near Flatirons School that are in dire need of upgrades. While working with the grassroots Gregory Creek improvement organization, I have come to understand how my neighbors downstream are resentful of the amount of resources and money that have been spent on two culverts (Aurora and Willowbrook), while other areas of the creek have been neglected.

Helen and Dorothea El Mallakh
850 Willowbrook Road
Boulder, CO 80302
303-442-4014

From: [Helen El Mallakh](#)
To: [Dean, Kristin](#); [Knapp, Katie](#)
Subject: Storm Inlets cannot be placed in front of driveways - Draft Proposal for Gregory Creek
Date: Monday, March 30, 2015 10:05:16 AM

Dear Kristin and Katie

I thought this would be useful to include with the comments at today's open house. The individual most familiar with our sewer problems has left public works, however, I just spoke with another water distribution operator from Boulder's Utility Maintenance who assisted us during the flood. He informed me that storm inlets cannot be placed in front of driveways. Thus, as proposed by the Gregory Creek draft staff recommendation, the storm inlet cannot be implemented as demarcated in front of 850 Willowbrook Road due to our driveway. I am attaching the PDF of staff's plans with my comments and area of concern indicated by a red circle.

Thanks

Helen El Mallakh
850 Willowbrook Rd.
Boulder, CO 80302
303-442-4014

From: noreply@bouldercolorado.gov
To: [Dean, Kristin](#)
Subject: Gregory Canyon Creek Flood Mitigation Study Form Submission
Date: Wednesday, April 01, 2015 5:42:44 AM

support_draft_plan: no

draft_plan_comments: I do not support the proposed storm inlets on the Willowbrook culvert in front of 445 Christmas Tree & 850 Willowbrook Rd. One of proposed inlet is in the driveway of 850 Willowbrook and inlets aren't supposed to be placed in front of driveways. Additionally, storm inlets fill quickly. Thus, there is limited upside to this proposal. After the flood, a new trash rack was already installed on this culvert. This new trash rack at the Willowbrook culvert should address the problems we had during the 2013 flood.

other_improvements: The City's sewer lines and problems aren't really addressed in this proposal. However, I support relocating the sewer line out of the Gregory Creek Gulch where it is now situated and relocated out of the gulch path. In the last flood, the sewer line washed out in the Gregory Creek Gulch and many properties were adversely affected by sewer line breaks upstream (damages paid 100% by the property owners).

specific_improvements: In the flood plan, it should be indicated what has already been done to address issues. For example, we have a new trash rack on the Willowbrook Culvert, but that isn't indicated. I think it's necessary to note where improvements have already been made.

name: Helen El Mallakh

address: 850 Willowbrook Rd.

email: elmallak@swbell.net

From: [Helen El Mallakh](#)
To: [Dean, Kristin](#); [Knapp, Katie](#)
Subject: Trash Rack/Culvert Entrance Improvement on Willowbrook Rd in the Alternative Analysis Memorandum
Date: Thursday, January 22, 2015 5:43:32 PM

Hi Katie

Another quick question for you since I won't be able to go with Kristen on the walk-through, on table 8 Potential Improvement Summary (page 6) and in some of the figures (pages 17, 20, 23) there is a proposal for an "improvement on the trash rack/culvert entrance." The City just put the new trash rack in last spring. Is this a proposal for a new trash rack? Do you think that the consultants knew that a new trash rack was already installed? I was under the impression when CHDMHill came to the neighborhood that they didn't know that that was the new trash rack was installed.

Thanks

Helen El Mallakh
850 Willowbrook Rd.
Boulder, CO 80302

From: [Knapp, Katie](#)
To: [Jack Jewell](#)
Cc: [Dean, Kristin](#)
Subject: RE: Email list - FW: Gregory Canyon Creek Mitigation Study Open House
Date: Tuesday, January 27, 2015 9:58:55 AM

Hi Jack;

Thanks for contacting us and providing your comments, questions, and observations. Your input is very helpful and appreciated. In response to your questions:

- Table 5 illustrates what is shown in the current floodplain model for Gregory Canyon Creek. This model was developed by Belt Collins, was adopted in 2010 and is what the current floodplain boundaries are based on.
- Our records show that there are 2 different crossings at Aurora: a smaller 36" diameter pipe (Crossing #1) and a big double box culvert (Crossing #2).
- Figure #1, the 2013 flood extents, is based on information collected in the field, aerial imagery, and personal accounts of what was observed. We have received conflicting information in some locations and understand that there are discrepancies. We continue to revise and refine this data as we are able to verify information. The detailed mapping you provided was very helpful in putting together this mapping and we will reassess the 6th St. area above Aurora.
- The different alternatives being evaluated include improvements to street sections that could help convey flood spills down streets instead of across private properties. Included in this evaluation is also a new pipe alignment that would collect flood waters that flow down Willowbrook Road and enter your property. This option includes a drainage inlet at the Willowbrook bend and a pipe that would convey water under the Gregory Gulch and under Aurora, back to Gregory Creek on the downstream side of Aurora.

We are expecting to receive a more complete evaluation of the costs and benefits of the different alternatives from CH2MHill soon and will be updating the website. We will then work on developing a preferred alternative based on costs, benefits and input from the neighborhood. I hope you will be in town for one of the site walks and/or the open house. The input from you and your neighbors is so important in helping us develop a successful mitigation plan to guide future improvements.

Please feel free to contact me to further discuss the study.

Katie

Katie Knapp, P.E., CFM
Engineering Project Manager
City of Boulder, Public Works - Utilities
303-441-4077

From: Dean, Kristin
Sent: Monday, January 26, 2015 9:41 AM
To: Jack Jewell
Cc: Knapp, Katie
Subject: RE: Email list - FW: Gregory Canyon Creek Mitigation Study Open House

Hello Mr. Jewell,

I did some research and found that you are on the city's Boulder Flood Info email list, but that you were not on the email list for the Gregory Canyon Creek Mitigation Study list. I have now added you to that list.

I have cc'd Katie Knapp, the project manager for this project, on this email. She can answer the questions you posed below.

I assure you that we will not be walking on your property during the site walks. We do hope you can attend one of them, though. We anticipate receiving refinements to the alternatives analysis in the very near future and will post the updated proposal on the web once they are received.

Please do not hesitate to contact me with any further questions.

Best Regards,

Kristin Dean, AICP
Utilities Planner
City of Boulder, Public Works - Utilities
303.441.4289

From: Jack Jewell [<mailto:jack@greenvcscel.com>]
Sent: Saturday, January 24, 2015 2:37 PM
To: Dean, Kristin
Subject: Email list - FW: Gregory Canyon Creek Mitigation Study Open House

Hello Kristin,

The email below, and a document titled Gregory_Creek_Alternative_Analysis_Memorandum-1-201410151026, were brought to my attention by a neighbor. I also heard about it from another neighbor. I don't know why I am not on the email list, as I am straight in the affected area, my address being 550 Aurora Avenue. Please add me to the list and keep me on it (or relay this information to appropriate person). I used to receive notifications by email, and so I don't understand my apparent removal.

Though traveling has prevented me from attending many recent meetings, I attended several that followed the flood. In those meetings, I presented a large-format detailed topographic survey map of my property, showing accurately where the flood water flowed, both in Gregory Canyon Creek and in "Gregory Canyon Gulch" on the western side of my property. Officials were keenly interested and I allowed them to scan the survey map with my water-flow regions. I also submitted a presentation for a Dec 2013 meeting (delivered by a neighbor) in which a 1941 survey showed "Gregory Canyon Gulch" that aligned precisely with the 2013 floodwater that I mapped (unaware at the time of the 1941 survey). More recently, I provided a 15-minute video that I shot all over my property on the Thursday Sept 12, 2013, just before dark (highest daylight floodwaters) to the city historical society. I took many still photos as well.

A quick scan of the aforementioned Memorandum reveals some inaccuracies and large concerns. I see my driveway is included in Table 5, but don't know what "Belt Collins Geometry 2010" means. Also I don't know to what "Aurora Crossing #1" and "Aurora Crossing #2" refer. Figure 1 shows floodwater flowing down 6th Street above Aurora Ave, which is plainly incorrect. Figure 4 is similarly incorrect, and my topographic survey map shows the flood extent on my property more accurately. The proposed 40'x6' culvert underneath Aurora Ave (Fig 5) is of great concern and unjustified in my opinion. In Fig 7 (3 of 3) I do not know what is meant by "Proposed Pipe Alignment Outfall North of Aurora at Existing Headwall Maximize Inlet Alignment Along Willowbrook," but it is of great concern. I also need to know what is meant by "Street Overflows." Precise meaning of terms is very important in such matters!

I do not know if I will be in town Feb 9 or 10. If so, I will certainly participate in the Site Walk detailed below. In either case, I do NOT want people walking through my private property. I hope to be in town for the March 30 Open House and April 20 WRAB meeting. Please feel free to contact me by email or phone on any matters that concern my property - same goes for other persons relating to the planning or projects.

Sincerely,
Jack Jewell
303-921-1710
550 Aurora Avenue
Boulder, CO 80302

Date: Friday, January 23, 2015 at 3:43 PM

To: Jack Jewell <jack@greenvcse.com>

Subject: Fw: Gregory Canyon Creek Mitigation Study Open House

On Thursday, January 22, 2015 2:13 PM, City of Boulder <deank@bouldercolorado.gov> wrote:



Gregory Canyon Creek Flood Mitigation Study Opportunities for Public Involvement

Site Walks with City Staff

City Staff welcomes you to join us as we walk Gregory Canyon Creek and discuss the recommendations for flood mitigation. We plan to conduct these walks on two separate dates in an effort to accommodate everyone's schedule. Come join us for the entire walk or just your area of interest:

Monday, Feb. 9 at 3 p.m.

Tuesday, Feb. 10 at 11 a.m.

We will start at the Willowbrook Rd. cul-de-sac and then walk the creek to its confluence with Boulder Creek.

If you cannot attend either of these dates, staff may be available to set up individual meetings.

For more details, please contact Kristin Dean at 303-441-4289 or deank@bouldercolorado.gov

Open House

An Open House to review the revised alternatives for the mitigation plan will be held on March 30, 2015 from 4:30 to 6:00 at the Flatirons Elementary School Library

Water Resources Advisory Board

This project will be reviewed at the April 20, 2015 Water Resources Advisory Board (WRAB) meeting at 7 p.m.

City Municipal Services Center, 5050 Pearl St.

For More Information

Please visit: <https://bouldercolorado.gov/flood/gregory-canyon-creek-flood-mitigation-study>



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City of Boulder | 1739 Broadway | Boulder | CO | 80301

From: [Marjorie K. McIntosh](#)
To: [Knapp, Katie](#); [Dean, Kristin](#)
Cc: [Dick McIntosh](#)
Subject: Thanks
Date: Wednesday, February 04, 2015 8:39:47 AM

Good morning, ladies. Thanks for coming to our house yesterday to talk about plans for flood mitigation work along this section of Gregory Creek. We were relieved to hear that the pipe option is not being considered seriously and that you do not intend to encourage water at the top (cul-de-sac) end of Willowbrook Road to come up onto the road, rather than staying in its normal bed as long as possible.

We continue to feel that getting as much water as possible back into the creek bed immediately below the main culvert under Willowbrook Road, before it gets to the bottom of the road, makes excellent sense. It seems worth considering ways to channel water back into the creek bed across a distance of no more than 20 feet, as opposed to figuring out what to do with it once it reaches the bottom of the road, where it has to cover the full stretch between Willowbrook and Aurora, going through our and Jack's properties. Yes, of course some of the water will do that, but we hope strenuously it will be no more than happened in 2013.

We hope you will also bear in mind our suggestion about turning our property into a publicly owned area that could be landscaped to slow the flow of water, though a series of large steps across the entire front of the property, and then allow it to settle along the back before moving on down towards Aurora. Would it be worth just asking Curt about this idea?

Jack left his jump stick with Dick, who will get another one, transfer the relevant movies and photos onto it, and have it ready for Kristin at the Walk next Monday.

We are fortunate to have people like you in charge of this process, willing to listen to local property owners' concerns.

with thanks,

Marjorie

To: Katie Knapp, as Project Manager for Mitigation Planning for Gregory Creek

From: Marjorie K. and J. Richard McIntosh, 870 Willowbrook Road, Boulder

Re: The proposed street-based plan for Gregory Creek at the north end of Willowbrook Road

Date: January 26, 2015

A. The Damage to Our Property and a Sewer Line Caused by the 2013 Flood

- Our house and yard were badly damaged by the 2013 flood. After the culvert under Willowbrook Road became blocked, much of the water that came down the lower section of the street crossed over into our yard. It ate away the dirt around the foundations of our house on the south and southeast sides, undermined two 60-ft Spruce trees, and dug a trench 10 feet deep at its lowest. The foundation plate of our house was exposed, and for a while it was not clear that the building could be saved.
- Some of the water coming down Willowbrook Road from the blocked culvert flowed into the driveway of our neighbors to the east before it reached our yard. From their driveway, that water went immediately back into the normal creek bed. What came through our yard was only part of the total volume of Gregory Creek.
- The water going through our yard flowed directly above a sewer line that extends along the eastern boundary of our property from the street to our NE corner. At the back of the yard, it destroyed a concrete manhole and a segment of the sewer line itself. These had to be repaired on an emergency basis by a city crew while the rain was still coming down, and a permanent replacement was installed later.
- The entire lower level of our house's interior was flooded, to a depth of 3 feet, and had to be rebuilt from scratch.
- Because water also flowed rapidly around the west and north sides of the house, all the surveyor's marks at the corners of our property were washed away.
- Since the flood, we have paid for three visits from a structural engineer to see whether any permanent damage was done to the foundation or walls of the house. His final opinion is that the house is still structurally sound, but only because the house was so solidly built in the 1950s.

B. The Steps We Have Taken To Protect Our Property in the Event of a Future Flood

- In developing a plan that is likely to protect our house in the case of a future flood, we worked with a water engineer (Curtis Stevens), a hydrologist, a surveyor, and a landscaper, and we sought legal advice from our attorney.
- The resulting plan was based upon the volume and speed of the water (measured as cubic feet per second) that came through our yard in the 2013 flood. We paid a substantial amount of our own money to install the walls, concrete channel, detachable fencing, and landscaping needed to implement that plan.

C. The Plans Produced by the City's Consultant for Gregory Creek

- The consultants hired by the City to produce various plans for mitigating future damage in the Gregory Creek area never contacted us.
- No one from the City has ever spoken with us about those plans.
- When we saw the three plans on the website, we assumed that the street-based version that shows all of Gregory Creek's water coming down Willowbrook Road and through our yard was so ludicrous that the City would immediately discard it. We therefore paid little attention to it.
- We were shocked to receive the recent notice about a walk led by a City officer through this area, following the street-based plan.

D. Problems with the Street-Based Plan from Our Perspective

- The plan shows all the flood water being diverted onto Willowbrook Road at the top of the cul-de-sac, rather than remaining in its normal bed until the culvert.
- It does not show any water passing down our neighbor's driveway and back into the normal creek bed.
- Instead, the entire volume of water would come straight down Willowbrook Road, picking up speed as it passed over the smooth paved surface, until it hit the curve at the bottom of the hill.
- At that point, the map shows the entire flow going through our yard.
- The water moving through our yard according to this plan would be larger in quantity and faster in speed than was the case in 2013, when the water had come down the road for a shorter distance, and some of it had already been diverted.
- Because the foundation of our house barely survived the 2013 flood, any additional volume and speed of water flowing past it is likely to cause the building to fail.
- The additional amount and velocity of water flowing down through our yard are likely to do even more damage to the underground sewer line that lies beneath that route.
- Increased flow and speed of the water as it exits our yard at the NE corner will have seriously detrimental effects for the two property owners directly downhill from us: Jack Jewel, on the SW corner of Aurora and 6th Streets, and Jane Butcher on the NW corner.

E. Our Response

- During the 2013 flood and its aftermath, City officials were consistently helpful in addressing the problems that resulted. We have been strong defenders of your response, in the face of disgruntled neighbors who were furious with the City for failure to keep the culvert open and thereby protect their property.
- But we are utterly unwilling to give the City permission to use our property as the designated watercourse for the entirety of Gregory Creek in the event of another flood. Any such plan would place us, our house, and our possessions at grave risk and would lower the value of our property dramatically.

- The legal implications of the City's proposed plan are obvious. We hope that action of that kind will not become necessary.

Copied to: Curtis Stevens, The Sanitas Group
Constance Eyster, esq., Hutchison, Black, and Cook



Pennsylvania Avenue Flood Repair Public Comments

05.12.2014

Purpose

- *Pennsylvania Avenue was damaged during the September 2013 flood and the City of Boulder is evaluating different options for repairs of the section of road between 6th and 7th streets, where Gregory Canyon Creek crosses the roadway. We asked members of the community to choose one of three alternatives or share another alternative with us.*
 - *Alternative 1: Replace the existing culvert (drainage pipe) and rebuild the roadway to pre-flood conditions.*
 - *Alternative 2: Remove the culvert and roadway above the creek, close the road to through traffic and build a pedestrian bridge over the creek.*
 - *Alternative 3: Remove the culvert and construct a new roadway with a significantly larger culvert or a vehicular bridge over the creek.*

Summary of Public Comments

General Comments

- **Alternative 1: 4 in favor**
 - Traffic on the road and school access is better mitigated on option 1. Option 2 looks like it would cause more blockage.
 - There would be through traffic, less congestion, a paved road, and less mud. School parking traffic will be decreased if back to pre-flood conditions. There would be less speeding traffic to suddenly stop at the closed road and dead end to turn around.
- **Alternative 2: 114 in favor**
 - Alternative two is much better for our neighborhood.
 - The culvert will continue to get clogged and spill over.
 - This has the greatest opportunity to mitigate future property damage from structure blockage and volume.
 - The culvert narrowing the creek bed at Pennsylvania caused the flooding west of the creek; Therefore if it is restored as it was there will be a problem of liability. It also seems that option two is less expensive.
 - Regardless of the alternative, the type of maintenance upstream to the head waters is critical for safety. The flood in September 2013 highlighted the limitations of culverts. Alternative two is consistent with City Council's goals of encouraging pedestrian traffic as opposed to vehicular traffic.

- I would like the peaceful space and green belt. There would be calmer traffic during school when kids are walking and a significant water flow improvement during flood episodes.
- It's very nice to see the creek again from the bridge. We can manage very well without this street and have been doing so since mid-September. Thank you for finding some funding to get started on the Gregory Creek flood plain mitigation. We know there are lots of mitigation needs elsewhere, but please don't forget that Gregory Creek needs more attention sometime in the future.
- Adequate access exists without Pennsylvania. Why rebuild it?
- The chance of the road washing out again will be lessened. A pedestrian bridge would be nice for the neighborhood. We walk our dog in the neighborhood a lot. Option two is a safer alternative. The children at Flatiron Elementary will have to contend with less traffic on Pennsylvania. Option one would risk rocks getting caught in the culvert again.
- If option two is selected, please move the west-side cul-de-sac further west.
- Great for habitat/wildlife restoration and a safe route for bikes, pedestrians and flood mitigation.
- Use the east side of the bridge area as a family meeting area for walking and cycling families. Pennsylvania can be a riding route to 6th. 6th should be a marked bike route to University and down to the Boulder Creek Path. Benches and bike racks should be provided. Thanks!
- This will not eliminate future flooding. The culvert under 7th gets blocked every time we have a severe thunderstorm. The grate catches debris and blocks very quickly.
- Pedestrian friendly.
- Better neighborhoods.
- This street hardly has any traffic to begin with. The pedestrian bridge close to the school would be a great addition!
- Option #2 sounds like a much better fit for the neighborhood!
- This would be so nice for walking my kids to school!
- This culvert caused my house to flood! Rebuilding it the same way is just plain stupid! Having a pedestrian bridge and cul-de-sac is the best idea I have heard from the city in years!
- I think a pedestrian bridge here would be a great addition for no extra cost! These kinds of options continue to make Boulder the special place it is.
- It seems like option 2 is clearly the right solution. Why rebuild something that will be blown out again? Let the stream run naturally as it was intended. Thanks for the opportunity to provide this input.
- I visit the neighborhood often and would enjoy walking over the foot bridge and seeing the stream below. There doesn't seem to be enough traffic to warrant rebuilding the road/culvert.
- Having seen firsthand the devastation that the clogged culverts caused throughout Boulder with the floods in September, I'm inclined to say where

there is an opportunity to allow water to flow in a more natural manner and still allow access to communities, this is the appropriate way to proceed.

- I am a fan of anything to improve pedestrian access to our beautiful creek.
- As someone who grew up in the neighborhood and still lives in town I like the second idea. Seems to be a much better idea for flood control and the idea of an open creek bed through there seems kind of nice. If it floods again you're going to have the exact same problem if you build it back.
- Let the stream flow!
- The pedestrian bridge option is a great one for this neighborhood!
- Pennsylvania Ave has a number of issues that make for an accident waiting to happen. These issues include: Icy conditions - due to lack of snow removal and direct sunlight, steep grades - west side, blind corners - Dean Pl. Reducing the amount of traffic by replacing the culvert with a foot bridge would lessen the risk of an accident on this street.
- I live on Pennsylvania and Gregory Creek goes under my deck. I would LOVE Option 2 with a pedestrian bridge. I think it offers a safe route to school for students walking or biking as well as slows down and/or lessens the traffic impact before and after school. In terms of emergency vehicles, since Pennsylvania only runs between 6th and 7th, it is already confusing and difficult to find so improved mapping and signage could effectively bring attention as to how to reach us on the West side via 6th or Dean Place. I also really like that this option allows for better wildlife and habitat restoration along with flood mitigation, in particular for the folks downstream.
- I am a big proponent of Alternative Two. I think any chance to restore a stream corridor should be capitalized on. There are ecological/habitat benefits, safety benefits regarding flood control and aesthetic benefits for those living there. I'm all for number 2!
- Very hopeful that we can begin a small step of prioritizing people traffic over car traffic.
- This is a really great opportunity to decrease flood risk while re-building! The extra cost of a pedestrian bridge is absolutely worth it for the downstream flood reduction.
- This seems like a great opportunity to increase multi-use pathways in Boulder. I have been in this area often and agree that drivers often speed through, even though there is a school nearby. It is such a beautiful area, would love to see it become more pedestrian friendly.
- I live at 637 Pennsylvania Ave and would like the pedestrian bridge please
- Given the proximity to the school building I think it makes sense to reduce some traffic in this area.
- Option #2 would improve the pedestrian character of the neighborhood and provide important flood relief that could not easily be obtained by a culvert.
- It seems like an option to take into account future flooding would be a good idea. Does local traffic require a bridge?

- Option 2 is a nice compromise. Flood improvements for future storms but at more than half the cost of a vehicular bridge.
- #2 has the most positive attributes.
- great job with some good alternatives --thanks staff
- Versus option 1, Option 2 seems like the better long-term compromise that's potentially a good investment capable of preventing damage otherwise in the future. With flooding though, it's a zero-sum game---every link of the chain would need to be more robust in order to prevent problems. Making one link stronger may have little net positive effect to the city. If this is one of the weakest links, then by all means, please treat as such.
- As a parent of students at Flatirons Elementary, I love the idea of closing this dangerous street to vehicles and walking my kids to school over a pedestrian bridge.
- It is imperative to our neighborhood that Alternative TWO is implemented, since the pre-flood condition is the one which enabled the flooding in the first place. The cost to restore our home is now close to \$50,000, and we know that others in our area have spent as much or more. We are asking the city in good conscience and good faith to help us to keep this from happening again.
- It is option number two which is most beneficial to our neighborhood, as it would allow more flood conveyance AND, very importantly, would interrupt the speeding and dangerous driving on Pennsylvania. The school already has good access on nearby streets, and the pedestrian bridge would be available for everyone. Thanks for your work on this.
- I live adjacent to the existing culvert and am in strong support of increasing the flood conveyance capacity. Option 2 is the most reasonable cost option that accomplishes this.
- Alt. 2 has, by far, the strongest support from those effected by this problem - those who were directly flooded by the breach of Penn. Ave. It does feel like the estimate for this repair could be greatly reduced by looking at simpler options for the bridge. Perhaps a use of pressure treated lumber beams instead of metal. The city cannot really choose Alt. 1 since that would put it in the position of intentionally creating a greater risk of flood and the possible liability. And since it is 7 months since the flood and nothing has been done, I see no value at this point of its being the fastest fix. That time is long past. It also seems the estimate for this job is way too low. Alt. 3 is too expensive and there is no good reason to do it. A final cheapest alternative would be to simply remove the ton of gravel that the city dumped in the hole, which raised the likelihood of further flooding, and fence the whole creek gap off on both sides at Penn. Ave. and have no access.
- Yes to a pedestrian bridge!
- Pedestrian Bridge seems wonderful!
- I hope this can still be received. I live on Pennsylvania and think this option is the best solution; for pedestrian/bike safety and access, wildlife habitat and flood mitigation.

- **Alternative 3: 7 in favor**

- Car bridge or better yet, a draw bridge.
- Square opening (rock wall exposed in flood) with roadway over (open to cars).
- Build a vehicular/pedestrian bridge or street and keep flow way open.
- Car bridge.
- Re-engineer the culvert to convey flow consistent with expected flow from culverts above and open street to vehicle traffic as well as pedestrian traffic. Flatirons Elementary School has been open well over 50 years and will be most affected by the decision. It is considered by Flatirons staff that closing the street would have a negative effect on the traffic flow relative to school operations.
- The biggest push to close the street thus far has come from a resident who moved in to the neighborhood 8 months ago and has stated he was "tired of having cars from the school park on Pennsylvania" and was going to try to get the street shut down.
- I actually prefer alternative 2 EXCEPT the fact that Flatirons Elementary School is located in the area. Students with special needs, combined with the occasional presence of bears and mountain lions, makes it critical for fast emergency response times.
- I support alternative 3 because it is the most comprehensive and it is the best for the nearby elementary school due to the access for emergency vehicles (which is negatively impacted by alter #2). This culvert was supposed to be replaced in 1996, but the project ran out of money. It is long overdue. Also, given that mountain lions have begun to hunt around gregory creek in town, it is a bad idea to create an ""attractive"" environment for wildlife as suggested by alter. 2. Due to the school and the number of small children, we must put public safety first and select option 3. The price is commensurate with the benefits.

- **Other options: 4 in favor**

- Reduce parking on east side of stream. Turn that area into a gathering place for kids and parents. Allow residents to access their drives, but reduce traffic and parking.
- I'm not advocating for any particular solution, but do have the following concern: if the capacity at Pennsylvania is increased, does that just mean that the flooding as the Creek goes under 7th will be that much worse? Or further down, as it goes under Pleasant? Or University? Or Eighth? It seems to me that having the creek top over and go sluicing down broad streets during a flood is not the worst solution -- it keeps the flood shallow enough not to drown anyone, or to cause major structural damage (just wet basements, which one can recover from.)
- alternative 2 is probably best, but i would like a draw bridge.
- alternative two or alternative 3 with a drawbridge.