C I T Y O F B O U L D E R
INFORMATION ITEM FOR:

TRANSPORTATION ADVISORY BOARD – May 12, 2014
ENVIRONMENTAL ADVISORY BOARD – May 14, 2014
OPEN SPACE BOARD OF TRUSTEES – May 14, 2014
PLANNING BOARD – May 15, 2014
WATER RESOURCES ADVISORY BOARD – May 19, 2014
PARKS AND RECREATION ADVISORY BOARD – May 19, 2014

GREENWAYS ADVISORY COMMITTEE AGENDA ITEM
MEETING DATE: May 22, 2014

SUBJECT: Pennsylvania Avenue Flood Repair/Improvement Project
REQUESTING DEPARTMENT: Anne Noble – Flood and Greenways Engineering Coordinator Katie Knapp – Utilities Project Manager Bill Cowern – Traffic Engineer
PURPOSE: The Pennsylvania Avenue flood repair/improvement project is being provided to board members as an information item. If you have any comments or concerns regarding the project, please pass them along to your Greenways Advisory Committee representative. If you have questions on this material, please contact Katie Knapp at 303-441-4077 or knappk@bouldercolorado.gov
GREENWAYS ADVISORY COMMITTEE ACTION REQUESTED: Staff requests a recommendation from the Greenways Advisory Committee concerning the proposed repair/improvements of Pennsylvania Ave.

EXECUTIVE SUMMARY:
During the flood events of September 2013, Gregory Canyon Creek overtopped and severely damaged the Pennsylvania Avenue roadway. The roadway was not immediately repaired because it looked like there was an opportunity to increase the flood conveyance capacity and improve the riparian habitat for what was initially considered to be a similar cost to replace the culvert pipe and repair the roadway. Therefore, prior to making repairs to the roadway, three different alternatives were assessed:

Alternative 1: Replace the existing culvert and rebuild the roadway.

Alternative 2: Remove the culvert and damaged 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.

The following table summarizes the findings:

Comparison of Alternatives			
Criteria	**Alternate 1**	**Alternate 2**	**Alternate 3**
Flood Conveyance	No Effect	Positive	Positive
Wetlands and Wildlife Habitat	No Effect	Positive	No Effect
Vehicular/Emergency Access	No Effect	Negative	No Effect
Pedestrian Access	No Effect	Positive	No Effect
Estimated Construction Start	2 Weeks	4-6 Months	4-6 Months
Cost	$4,000	$95,000	$225,000

STAFF RECOMMENDATION:
After evaluation of the three alternatives, the utilities department recommends immediate implementation of Alternative 1: replace the damaged culvert and rebuild the roadway to pre-flood condition, while further evaluating Alternative 2: remove the culvert and damaged roadway above the creek, close the road to through traffic, and build a pedestrian bridge over the creek. This approach was selected for the following reasons:

- Repairing the roadway to pre-flood conditions is cost effective and can be done quickly. It can be completed while school is out for summer break.
- The initial repair work will allow the damaged roadway and creek area to be stabilized to prevent further erosion and the accumulation of trash in the area.
- Once the roadway is repaired, the blockades can be removed, clearing the area of additional obstructions to flood waters and eliminating the rental and maintenance costs associated with the blockades.
- There are many positive benefits associated with Alternative 2 and a high level of public support for the construction of a pedestrian bridge in this location.
- A flood mitigation study for Gregory Canyon Creek is currently underway to explore mitigation opportunities along the entire creek corridor. Alternative 2 can be assessed as part of the mitigation study so that improvements in this area can be coordinated with other mitigation projects along Gregory Canyon Creek, maximizing the benefits.

Attached is information concerning the proposed repair/improvements of Pennsylvania Ave. for review and consideration.

Attachment A: Pennsylvania Avenue Flood Repair/Improvement Alternatives Analysis

Pennsylvania Avenue
Flood Repair/Improvement
Alternative Analysis

April 2014

EXECUTIVE SUMMARY

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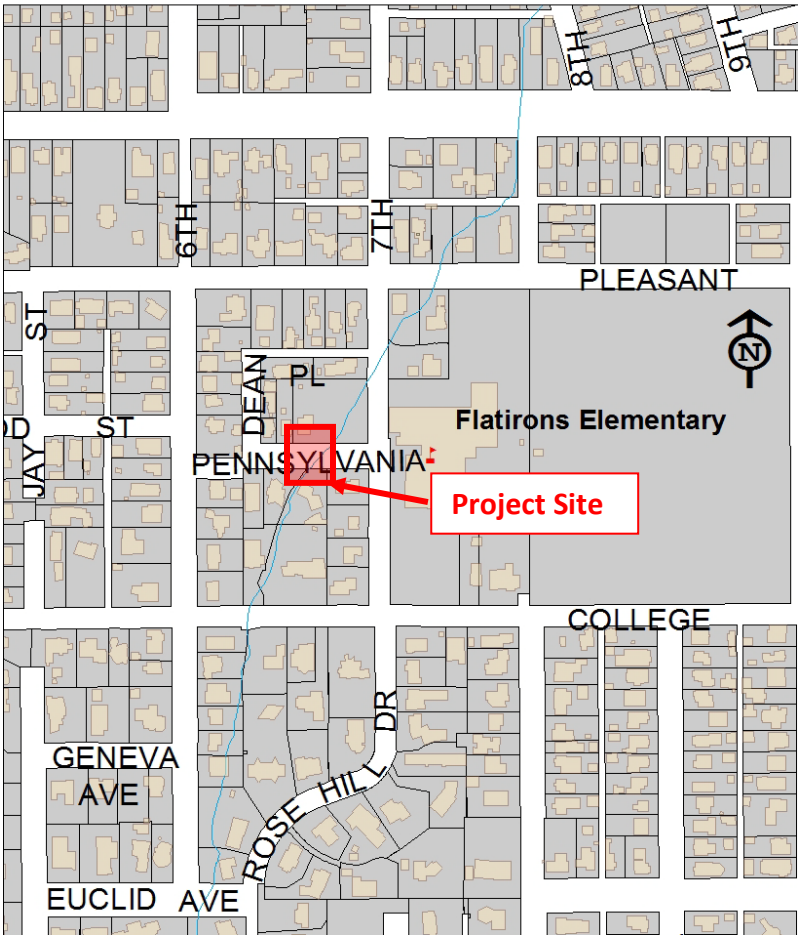
- Repairing the roadway to pre-flood conditions is cost effective and can be done quickly. It can be completed while school is out for summer break.
- The initial repair work will allow the damaged roadway and creek area to be stabilized to prevent further erosion and the accumulation of trash in the area.
- Once the roadway is repaired, the blockades can be removed, clearing the area of additional obstructions to flood waters and eliminating the rental and maintenance costs associated with the blockades.
- There are many positive benefits associated with Alternative 2 and a high level of public support for the construction of a pedestrian bridge in this location.
- A flood mitigation study for Gregory Canyon Creek is currently underway to explore mitigation opportunities along the entire creek corridor. Alternative 2 can be assessed as part of the mitigation study so that improvements in this area can be coordinated with other mitigation projects along Gregory Canyon Creek, maximizing the benefits.

BACKGROUND:

Gregory Canyon Creek crosses under Pennsylvania Avenue between 6th Street and 7th Street, east of the Flatirons Elementary School.



Site Location

During the flood events of September 2013, Gregory Canyon Creek overtopped and severely damaged the Pennsylvania Avenue roadway. The roadway was not immediately repaired because it looked like there was an opportunity to increase the flood conveyance capacity and improve the riparian habitat for what was initially considered to be a similar cost to replace the culvert pipe and repair the roadway.

When the damaged asphalt pavement was removed, the existing culvert pipe was assessed. The pipe was determined to be in poor condition and therefore could not be reused.

Remnants of old bridge abutments were also revealed. The city's Historic Preservation Planners visited the site and determined that the old bridge abutments were not significantly intact and did not require preservation. It was recommended that salvaged stones from the abutments be used in the repair project, if possible.

Different options for repairs and improvements to the area were suggested by city staff and residents in the area. Prior to making repairs to the roadway it was decided that the different alternatives would be assessed.

ALTERNATIVE ANALYSIS:
Three alternatives for repairing the flood damaged roadway were evaluated:

Alternative 1: Replace the existing culvert and rebuild the roadway.

The first alternative would involve replacing the existing culvert pipe and repairing the roadway back to pre-flood conditions. This is the most economical solution and could be completed for approximately $4,000. It would also be the quickest to implement because it would not require a floodplain analysis or any flood or wetland permits. If selected, this alternative could be implemented in early June, once the school is out for summer break.

Alternative 1

This alternative would not increase the flood conveyance or include flood mitigation improvements, but it would allow the area to be stabilized the fastest. Future flood mitigation options for the area would be assessed as part of the Gregory Canyon Creek Flood Mitigation Study, a separate project currently underway to identify flood mitigation opportunities along Gregory Canyon Creek between Flagstaff Road and Boulder Creek.

Repairing the roadway to the pre-flood conditions would restore the historic traffic patterns and emergency access, and allow the existing traffic barricades and safety fencing to be removed in the shortest timeframe.

Alternative 2: Remove the culvert and damaged roadway above the creek, close the road to through traffic, and build a pedestrian bridge over the creek.

The second alternative would involve removing the existing culvert pipe and adjacent asphalt roadway, and building a multi-use trail with a bridge across the creek. This alternative would cost approximately $95,000. This alternative would change the geometry and the flow characteristics of the creek and would therefore require a floodplain analysis and flood and wetland permits. Permanent closure of the roadway would also require Planning Board approval in accordance with the City Street Closure/Traffic Restrain Policy (Appendix A). The floodplain analysis, design work, approval process and permitting would take approximately four to six months before construction could begin.

Alternative 2

Installing a pedestrian bridge would provide additional flood capacity at this location which could decrease the flooding risks for properties in the area. This option provides the greatest wildlife and wetland habitat benefits by minimizing the impervious area above and adjacent to the creek and increasing the length of open channel and riparian area.

Permanently closing the roadway to vehicular traffic would change the historic traffic patterns. Residents in the area reported that prior to the flood, there was high speed and dangerous traffic on Pennsylvania Ave. in the morning and afternoon when students were dropped-off and picked-up from the Flatirons Elementary School. Pedestrian access would be improved by eliminating the through traffic and installing a pedestrian bridge. A traffic study (Appendix B) was conducted to evaluate the impacts of closing the road. The conclusions of the study are as follows:

- This narrow discontinuous one-block segment of Pennsylvania Avenue, a local access roadway, does not play a large role in the overall connectivity of the grid of streets in this part of Boulder.
- Local access traffic that is diverted as a result of this closure is being easily accommodated by the surrounding grid of streets.

- This block of Pennsylvania Avenue will still provide bicycle and pedestrian connectivity in the area, and will still provide on-street parking for parents who are picking up their children from Flatirons Elementary School.
- It was determined that the road closure would not create adverse impacts related to noise or safety.
- The proposed closure meets the "extraordinary circumstances" traffic related criteria of the City's street closure policy.

Alternative 3: Remove the culvert and construct a new roadway with a significantly larger culvert or a vehicular bridge over the creek.

The third alternative would involve removing the existing culvert pipe and rebuilding the roadway with a vehicular bridge or a larger box-style culvert across the creek. This alternative would cost approximately $225,000. This alternative would change the geometry and the flow characteristics of the creek and would therefore require a floodplain analysis and flood and wetland permits. The floodplain analysis, design work and permitting would take approximately four to six months before construction could begin.

Alternative 3

Installing a vehicular bridge or larger culvert would provide additional flood capacity at this location which could decrease the flooding risks for properties in the area. Historic traffic patterns would also be restored.

Comparison of Alternatives:

The following table summarizes the findings:

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Criteria	**Alternate 1**	**Alternate 2**	**Alternate 3**
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Alternative 3: Remove the culvert and construct a new roadway with a significantly larger culvert or a vehicular bridge over the creek.

PUBLIC COMMENT:
To gather public input, an open house was held on Feb. 6, 2014 and a project website was developed with an online survey form. The first two alternatives were initially considered because the costs were originally estimated to be of similar magnitude. A few people requested that a third alternative, construction of a vehicular bridge, be evaluated. The third alternative was included in the analysis and the project website was updated to provide an opportunity for additional comments on all three alternatives.

The majority of the local residents showed a high level of support for Alternative 2, closure of the road and installation of a pedestrian bridge. There was a concern raised that improving the natural habitat along the creek, Alternative 2 would encourage additional bear and mountain lion activity along the creek and near the elementary school.

A compilation of the public input received from the open house and online surveys is included in Appendix C.

STAFF FINDINGS AND RECOMMENDATIONS
Flood recovery work has been ongoing since the September flood event with several different contractors working on various repairs. Repairing Pennsylvania Avenue to pre-flood conditions was included in a flood repair bid in order to get a cost for the repair work and give the city the option to quickly move forward with the repairs. The $4,000 cost to repair the roadway was less than initially anticipated. After evaluation of the three alternatives, the utilities department recommends immediate implementation of Alternative 1 while further evaluating Alternative 2. This approach was selected for the following reasons:

- Repairing the roadway to pre-flood conditions is cost effective and can be done quickly. It can be completed while school is out for summer break.

- The initial repair work will allow the damaged roadway and creek area to be stabilized to prevent further erosion and the accumulation of trash in the area.
- Once the roadway is repaired, the blockades can be removed, clearing the area of additional obstructions to flood waters and eliminating the rental and maintenance costs associated with the blockades.
- There are many positive benefits associated with Alternative 2 and a high level of public support for the construction of a pedestrian bridge in this location.
- A flood mitigation study for Gregory Canyon Creek is currently underway to explore mitigation opportunities along the entire creek corridor. Alternative 2 can be assessed as part of the mitigation study so that improvements in this area can be coordinated with other mitigation projects along Gregory Canyon Creek, maximizing the benefits.

APPENDICIES:

Appendix A: City Street Closure/Traffic Restraint Policy
Appendix B: Traffic Analysis
Appendix C: Public Input Summary

MEMORANDUM

June 29, 1984

TO: City Council

FROM: James W. Piper, City Manager

SUBJECT: Street Closure/Traffic Restraint Policy

This memorandum focuses on the recent study session where Council considered alternative street closure policies. The staff recommendation was that streets could only be considered for closure as part of a larger neighborhood comprehensive plan or local improvement district and then only if certain criteria were met.

Council discussion, which acknowledged the need to preserve the integrity of the existing transportation system, favored an approach to street closures as expressed in the proposed policy statement shown below:

Proposed Policy Statement

In recognition of the need to provide safe and convenient access for local residents while retaining mobility within the larger transportation system, street closures will not be considered for traffic management purposes.

Exceptions to this policy may be considered only within the context of a comprehensive neighborhood planning effort conducted by the City or as part of a local improvement district. If extraordinary circumstances are found during the planning process which suggest a possible street closure, the following criteria will need to be met:

1. The street under consideration for closure must be a local street as shown on the Comprehensive Plan.

2. Sufficient funding must be available, through City or other resources, to cover the City cost of study requirements and any recommended project improvements.

3. The request must meet all legal considerations.

4. The closure cannot substantially impair emergency access. Fire response time to <u>and</u> <u>through</u> the neighborhood cannot be increased by more than 30 seconds, nor can the total response time exceed 6 minutes.

5. The request must be evaluated against a traffic analysis which is based on current accepted engineering practice and professional judgement. This would include an evaluation of noise, speed, accident history, existing mix of through and local traffic, safety considerations, etc.

6. The proposed neighborhood plan and potential closure must be approved by the Planning Board.

JWP/LH/rm

April 4, 2014

Mr. Bill Cowern
Traffic Operations Engineer
Transportation Division
City of Boulder

Re: Traffic Study Report for Pennsylvania Avenue Closure – 6th Street to 7th Street

Dear Bill,

At your request I have completed a transportation evaluation for the proposed permanent closure of Pennsylvania Avenue between 6th Street and 7th Street on the west edge of Boulder. This block of Pennsylvania Avenue was effectively closed to through traffic when a portion of the roadway washed away during last September's flooding. It is my understanding that the proposal is for this one block segment of Pennsylvania Avenue to remain closed to automobile traffic where it was washed out, and that a pedestrian bridge will be installed to maintain connectivity for pedestrians and bicyclists.

This transportation evaluation is intended to address applicable "extraordinary circumstances" criteria as listed in the City's street closure policy statement dated June 29, 1984 (copy attached).

In making this evaluation I have:

- conducted a site visit and toured the roadway grid in this part of Boulder;
- observed traffic patterns in the area during the afternoon student pick-up period at the adjacent Flatirons Elementary School;
- determined the number of homes directly impacted by the road closure;
- estimated the amount of traffic that is being diverted onto adjacent roadways;
- and commented on the potential of the surrounding roadway grid to accommodate the redirected traffic.

On this basis I offer the following observations and findings:

Existing and Historic Roadway Conditions:

1. This portion of west Boulder is served by a grid of streets as illustrated on Figure 1.
2. Figure 2 provides a closer view of the roadways in the immediate area.
3. Pennsylvania Avenue is discontinuous in this part of Boulder. It does not extend west of 6th Street, and does not extend east of 7th Street, where it is blocked by the Flatirons Elementary School site and the Pioneer Gateway Cemetery. Pennsylvania Avenue does not continue again until east of 9th Street.

4. The one block long segment of Pennsylvania Avenue (between 6th Street and 7th Street) that is being considered for permanent closure primarily serves as a local access roadway for adjacent residences. It is unlikely that this block served any significant "through traffic" as part of Boulder's grid of streets.
5. The surrounding grid of streets is still intact, with 6th Street and 7th Street providing north south access, and College Avenue, Pleasant Street, and University Avenue providing east-west access.
6. This block of Pennsylvania Avenue is narrow (20 feet of asphalt +/- with no curb and gutter) and a bit crooked from end to end (see attached photographs).
7. There is a temporary pedestrian pathway through the road closure area.
8. Currently Pennsylvania Avenue is used by parents of school children for parking during the afternoon pick-up period, with parent vehicles parked on both sides of the road closure.
9. Dean Place provides a "dog leg" connection to 7th Street on the north side of Pennsylvania Avenue (see Figure 2). This connection is narrow and feels more like an alley than a through street.
10. Both Dean Place and Pennsylvania Avenue are low speed narrow roadways whose primary purpose is residential access.

Traffic Access and Diversion Caused by the Closure:

11. Dean Place and Pennsylvania Avenue provide access to approximately 20 residential properties. Of these, approximately 15 dwellings may have their access route affected by the road closure. These 15 dwellings likely generate less than 150 one-way automobile access trips per day.
12. With the Pennsylvania Avenue closure in place, it is estimated that the following daily traffic volume changes are occurring (relative to historic traffic levels):
    - 6th Street north of Pennsylvania: + 75 vehicle trips per day
    - 6th Street south of Pennsylvania: + 75 vehicle trips per day
    - 7th Street, College to Pennsylvania: - 75 vehicle trips per day
    - 7th Street, Pleasant to Pennsylvania: - 75 vehicle trips per day
    - College Avenue, 6th to 7th: + 75 vehicle trips per day
    - Pleasant Street, 6th to 7th: + 30 vehicle trips per day
    - University Avenue, 6th to 7th: + 45 vehicle trips per day
13. The traffic diversions listed above are relatively low and are being easily accommodated by the surrounding roadway grid. It is unlikely that this level of traffic diversion is very noticeable (5 to 10 vehicles per hour during the highest hour of the day) to residents along those roadways.

Conclusion:

- This narrow discontinuous one-block segment of Pennsylvania Avenue, a local access roadway, does not play a large role in the overall connectivity of the grid of streets in this part of Boulder.
- Local access traffic that is diverted as a result of this closure is being easily accommodated by the surrounding grid of streets.
- This block of Pennsylvania Avenue will still provide bicycle and pedestrian connectivity in the area, and will still provide on-street parking for parents who are picking up their children from Flatirons Elementary School.
- I am not aware of any prior or current traffic issues related to noise, safety, or accident history that would be adversely affected by the proposed closure of this one block to through automobile traffic.
- In this context I believe that the proposed closure meets the "extraordinary circumstances" traffic related criteria of the City's street closure policy.

I hope this information is helpful. Please let me know if you have any questions.

Sincerely,
FOX TUTTLE TRANSPORTATION GROUP, LLC

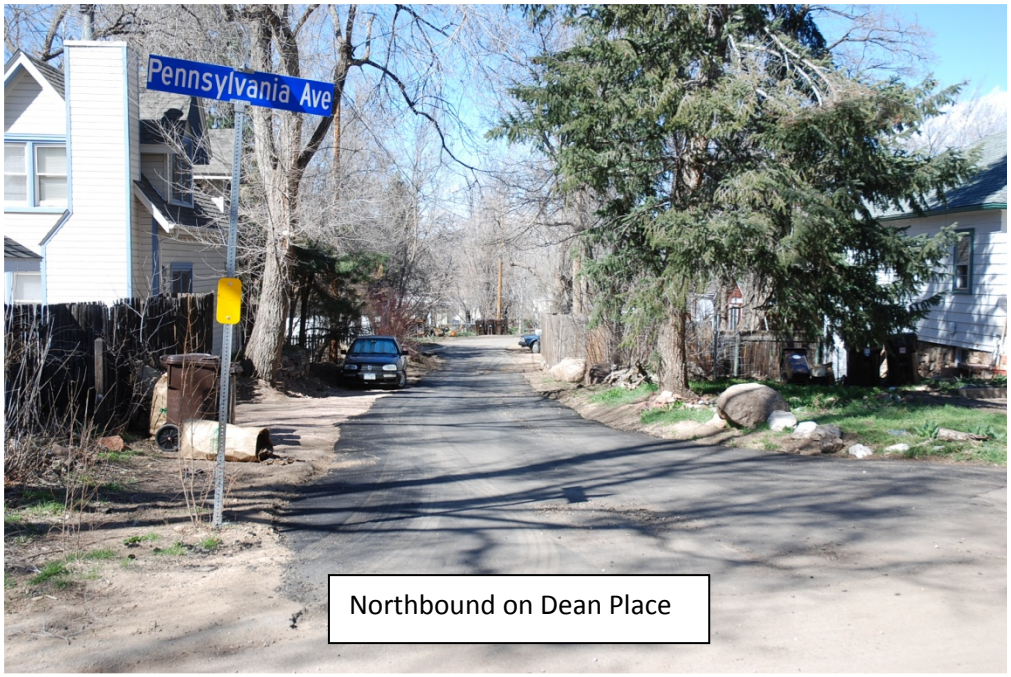
William C. Fox, P.E.
Principal

Attachments: Area Photographs and Figures

Area Photographs:

Eastbound on Pennsylvania

Westbound on Pennsylvania



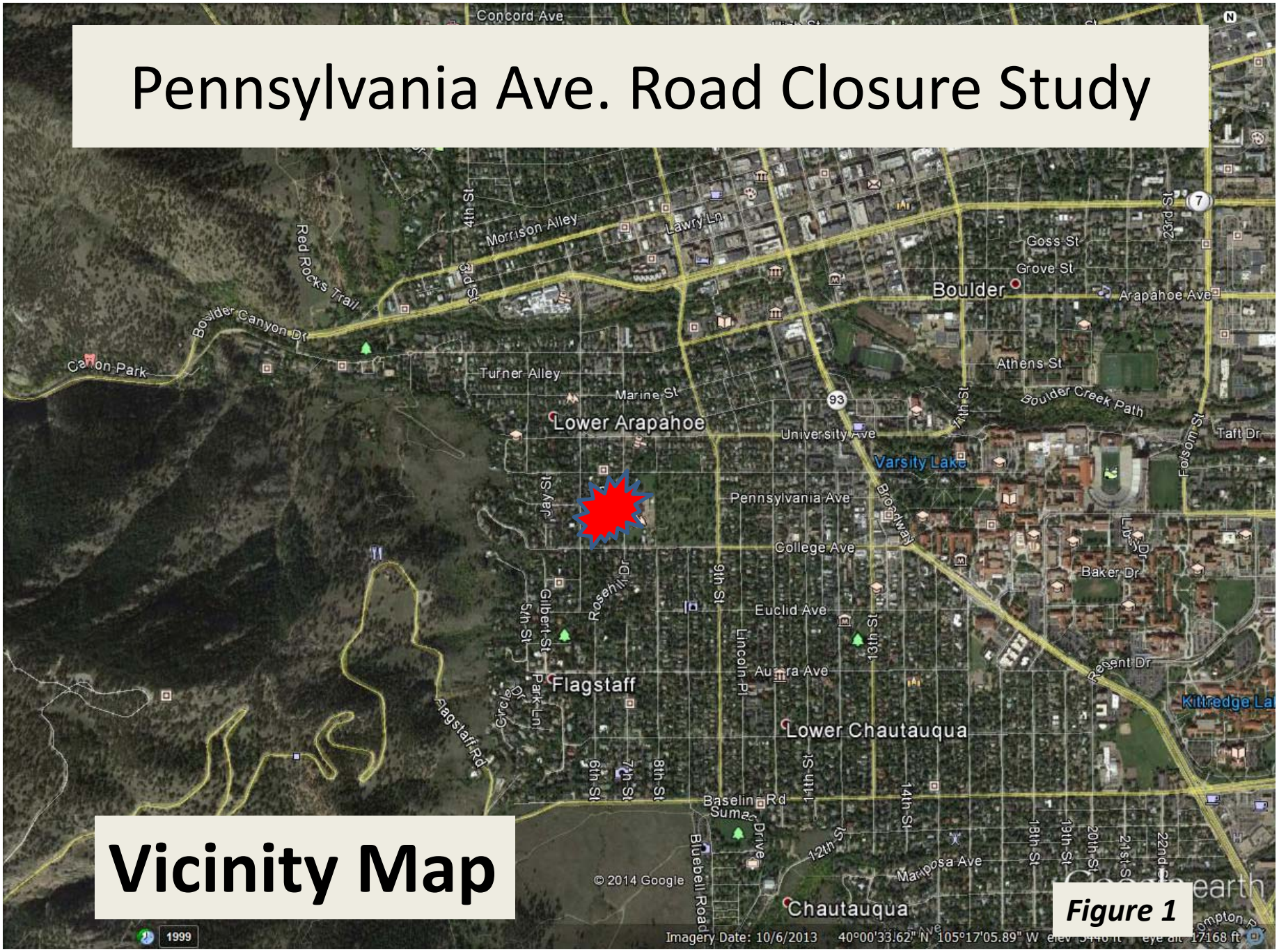
Northbound on Dean Place

Eastbound on College at 6th

Southbound on 6th

Westbound on Pleasant

Pennsylvania Ave. Road Closure Study



Vicinity Map

Figure 1

Pennsylvania Ave. Road Closure Study

Area Map

Figure 2

MEMORANDUM

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1. The street under consideration for closure must be a local street as shown on the Comprehensive Plan.

2. Sufficient funding must be available, through City or other resources, to cover the City cost of study requirements and any recommended project improvements.

3. The request must meet all legal considerations.

4. The closure cannot substantially impair emergency access. Fire response time to <u>and</u> <u>through</u> the neighborhood cannot be increased by more than 30 seconds, nor can the total response time exceed 6 minutes.

5. The request must be evaluated against a traffic analysis which is based on current accepted engineering practice and professional judgement. This would include an evaluation of noise, speed, accident history, existing mix of through and local traffic, safety considerations, etc.

6. The proposed neighborhood plan and potential closure must be approved by the Planning Board.

JWP/LH/rm

Pennsylvania Avenue Flood Repair
Public Comments

04.28.2014

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
- Alt. 2 has, by far, the strongest support from those effected by this problem - those who were directly flooded by the breech 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 likelyhood 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:** <u>7 in favor</u>
  - 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.

- **Other options:** <u>4 in favor</u>
    - 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.