



MEETING SUMMARY

Project Name:	<i>Beaver Creek Alternatives Analysis, City of Brush, CO</i>
Meeting:	<i>Kickoff Meeting</i>
Date:	<i>October 27th, 2017</i>
Place:	<i>Brush Fairgrounds, 829-899 Ellsworth St, Brush, CO 80723, USA</i>
Time:	<i>10:00 AM – 11:30 AM</i>

1. **Attendees:** See sign in sheet.

2. **General Discussion**

- *Ms. Thuy Patton, Colorado Water Conservation Board (CWCB) provided an introduction to the meeting. She mentioned that the City of Brush was interested in reducing flood risk in the City. CWCB recognized this need and funded an effort to review several potential design alternatives that could be pursued. CWCB brought their mapping contractor AECOM on board to support the analysis. This study was envisioned as a high level conceptual view of what can be accomplished, and it does not include actual design of potential mitigation alternatives.*
- *Mr. Rigel Rucker, AECOM, mentioned that a fact sheet had been sent out identifying potential alternatives that would be investigated. Currently, the plan is to investigate detention, channelization, levees, and a combination of the three. He mentioned each of these can be very expensive, so a conceptual cost will also be identified to help the community plan. Before getting to the details of each, he asked if the meeting attendees could identify the potential outcomes they were hoping to get from this project.*
- *Mr. Monty Torres, City of Brush, indicated that the City needed this study for the last 15 years. This is especially true with the new floodway shown on Flood Insurance Rate Maps (FIRMs).*
 - *The original FEMA study was missing data.*
 - *Nolte was going to conduct a mitigation study, but the City did not have funds.*
 - *The City recently met with Jamie Prochno at United States Army Corps of Engineers (USACE) and they were going to conduct some modeling. She needed the model to do so. AECOM should follow up with Jamie and see if there are any efforts that can be leveraged.*
 - *The City would like to get the majority of the community out of the floodplain and floodway especially since it is already built out. They would also like to consider developing areas.*
 - *The community has experienced historic flooding. However, there are different stories about how things flooded and where.*
 - *There is a HEC-RAS model available for Beaver Creek from the last study that was conducted, which replaced the original FEMA study.*
- *CDOT also has data available. Mr. Brian Varrella, CDOT, mentioned that highway 71 is being studied, and there is likely data sharing that can occur. CDOT is also planning on flying new lidar for the highway 71 corridor. Ms. Patton also indicated that there are*



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plans to collect additional lidar when funding becomes available, but the data will likely not be available for this study. *AECOM will coordinate with CDOT to determine any data that can be leveraged and when.*

- A question was asked if lidar and survey was used for the previous study. It was discussed that lidar is relatively new, so photogrammetry was used. However it can have similar accuracy. Survey was also used for the latest study.
- A question was asked about the hydrology used. Attendees discussed that the hydrology values were established in FEMA's last Flood Insurance Study (FIS), and would continue to be used. The watershed is very large and is over 1,000 square miles according to the FIS. The values calculated for hydrology take into account rainfall and soils. Current estimates are that the 100 year or 1% annual chance flood is approximately 38,000 cfs, while previous estimates indicated it was approximately 55,000 cfs.
- A question was asked if regional detention could be an alternative. Regional detention is another option that is not being considered under this analysis. There would need to be major changes throughout the large watershed to have a meaningful impact.
- A question was asked if there is a list of flood concerns that is maintained through the state that is maintained to see where priorities are. Mr. Kevin Houck, CWCB, indicated that there is not a single list. There are many flood concerns, and the state is aware of many, but not all of them.
- Attendees mentioned that lidar is a concern and that they want to make sure accurate data is used. Ms. Patton mentioned that the state has applied for \$7M of funding, \$3.4 Million from FEMA and \$3M from USGS to secure lidar in parts of eastern and western Colorado. If the funding is awarded, all of Morgan County will have new lidar collected.
- Mr. Greg Kernohan, Ducks Unlimited, asked if wetlands and green infrastructure would be considered. He mentioned projects that he was pursuing for wetlands development and green infrastructure in the upper watershed that could also help water quality. Mr. Rucker agreed that this should be coordinated on, especially for location and sharing of resources. However, these types of projects likely wouldn't have a large impact on the 100 year flood, given the amount of anticipated flow.
- Mr. Rucker discussed each of the alternatives being considered for this project. He referred to the attached fact sheet for the details of each, and initial benefits and issues identified for each. It was noted that each of these alternatives would be investigated on a conceptual basis and would not be designed. The result of the study would be a report and some exhibits describing the potential alternatives.
 - A South Platte storage study was mentioned that may be used for the detention alternative. *AECOM will coordinate with CWCB to obtain information on the study.*
 - Previous estimates for levees have included 13 foot tall structures, which would likely not be a viable solution. The City still wants to investigate this solution. The levee would need to meet requirements of 44 CFR 65.10.
- It was discussed that the required infrastructure would likely be a combination of the three alternatives. It is a difficult area because high flows would be anticipated and the area is very flat.



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- The hydrology was discussed in more detail. There was record rainfall in 2015. According to members in the City, the flood in 1965 was about 24,000 cfs and classified as a 25 year event. The amount of moisture in the soil can affect how bad flooding is. Mr. Houck indicated that the hydrology was not going to be reviewed for this study. That would likely only result in small changes. The problem will still remain that the town is at risk of flooding. It makes more sense to focus on the problem and identify potential solutions.
- A question was asked if the railroad closer to the South Platte was causing a constriction. It is unknown at this time.
- A question was asked whether CDOT has a requirement for sizing underpasses. Mr. Varrella indicated that CDOT usually adds wider openings to help convey more flow. The highway 71 redesign would coordinate with this effort to see what is needed. He also mentioned that under pass opening dimensions are picked up with ground trothing after lidar collection.
- Ms. Patton reiterated that this study is not a design, and does not include construction. It is also important to note that the results of this study could indicate that proposed infrastructure is unreasonable or does not have the flood reduction impact desired. She also mentioned that this effort is separate from the ongoing FIRM updates.
- Mr. Chuck Miller, property owner, indicated that property owners do not want to be told what to do with their property. He believes that there is certain information that can be used against homeowners. He is not interested in people protecting him. He believes that facts need to be reviewed.
- The City would like to be transparent with this study. CWCB indicated that links to the data for this meeting could be given to the City to post on the county website.
- Morgan County spatial data is available online for review. AECOM will review the data.
- Mr. Kernohan discussed another ongoing project. He had secured an EPA grant to improve water quality based on a 2012 watershed plan.
 - He mentioned that there would be 8 stakeholder meetings.
 - Currently, CSU and co-op are involved. He would like to get academic and public involvement and public outreach.
 - Will look at nitrogen and phosphorous levels.
 - Also, Ducks Unlimited has a lot of history with the area which they are able to leverage for the study.
 - AECOM and Ducks Unlimited will coordinate on items that could be leveraged between the two projects.

3. Action Items:

- Action items are highlighted in **bold**.

4. Meeting Adjourned at 11:30 AM MT

These notes are an interpretation of discussions held. Please provide any additions or corrections to the originator within 5 days of the date signed; otherwise they will be assumed correct as written.

Prepared by: Rigel L. Rucker

Date: 11/15/2017

Distribution

Meeting attendees



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Attachments

Beaver Creek Alternatives Analysis Fact Sheet
Sign-in sheet