

The clock is ticking until the next flood, and after 25 years and million spent on engineering consultants we still do not even have plans for the construction of a South Boulder Creek flood mitigation facility.

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In 1996, a floodplain study determined hundreds of homes were constructed in the 100-year floodplain of South Boulder Creek and that a flood control project was needed to prevent the loss of lives and property.

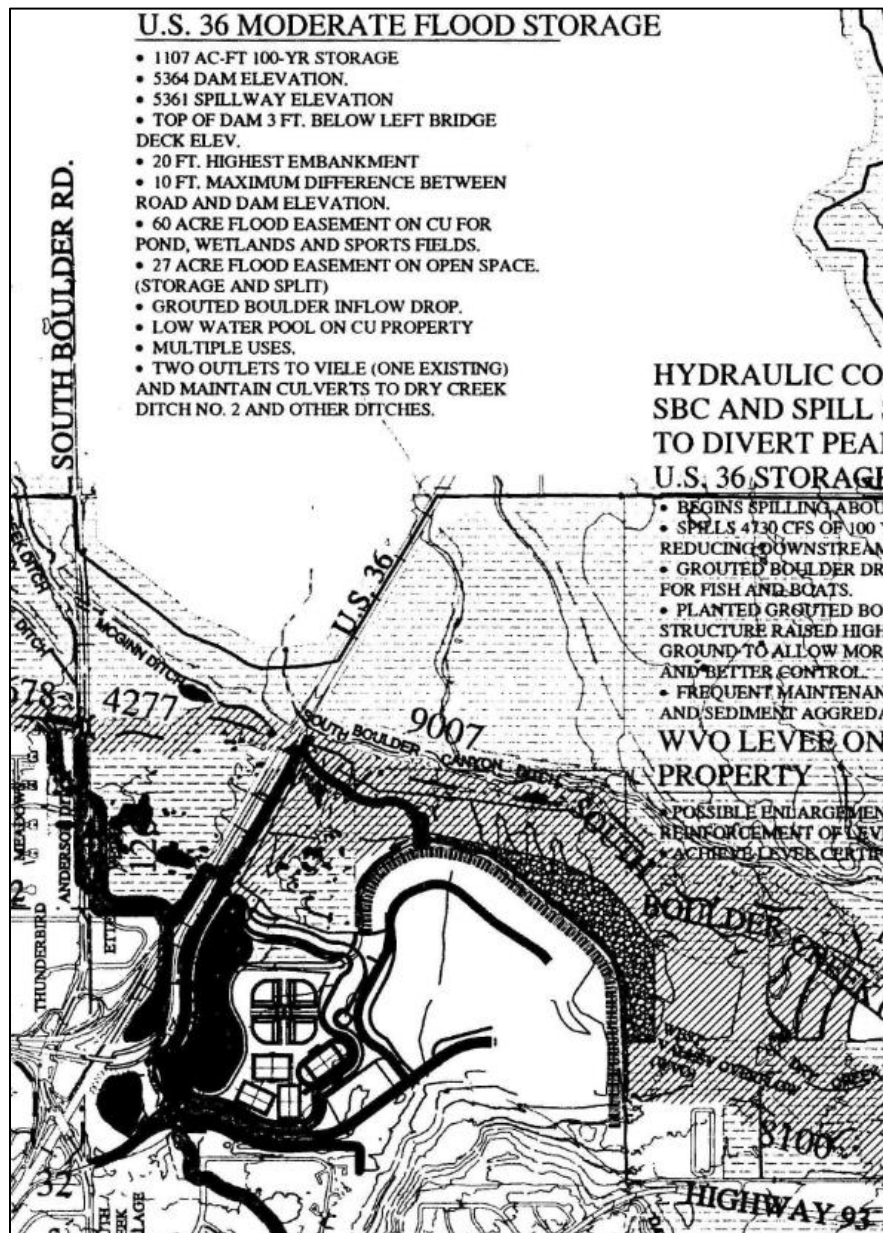
If the project was properly managed, ten years would have been ample time to model the floodplain, develop preliminary mitigation plans, obtain local governmental authorization, perform groundwater and geotechnical studies, develop final engineering plans, obtain state and federal permits, put the project out to bid, and get it built. The project could have been completed well before the 2013 flood.

Why have we spent millions over a period of 25 years and still do not even have engineering plans for the project?

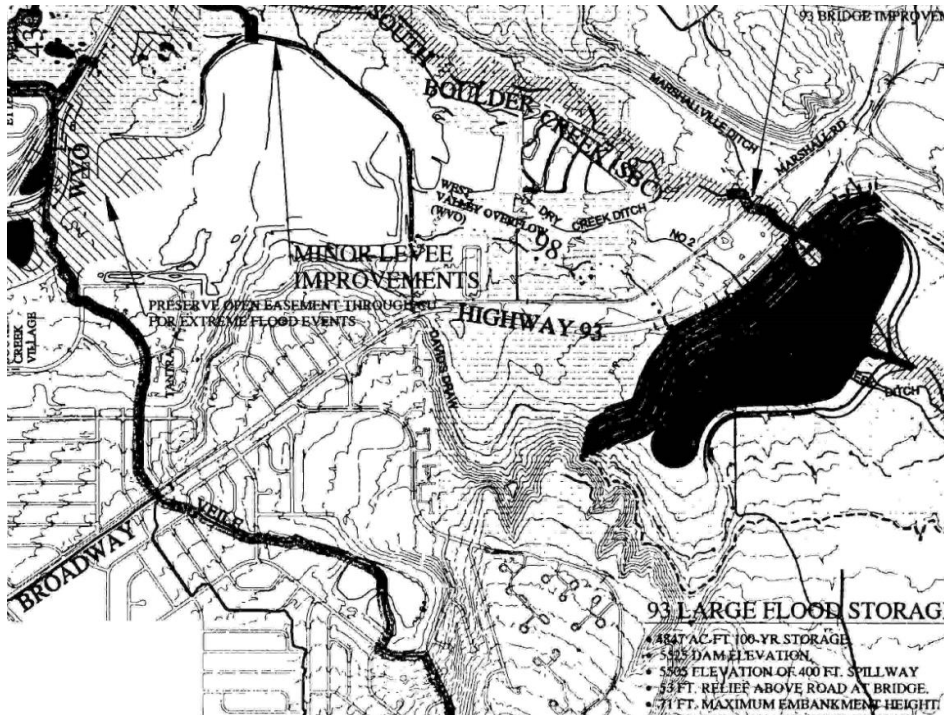
1. The only feasible location for the project is in the flood prone depleted Flatiron gravel pit owned by the University of Colorado. CU made flooding worse by removing large ponds from the gravel pit reclamation plan, which could have been configured to attenuate floodwaters, and by adding a long earthen levee around the gravel pit to divert floodwaters onto neighboring properties;
2. CU is holding the city hostage and has demanded the city annex the entire gravel pit and agree to provide water and sewer utilities before CU would allow any of its land to be used for flood control. This has delayed the project by at least five years while the city updated the Boulder Valley Comprehensive Plan, revised plans to satisfy CU's demands and worked on a complex eighty-page annexation agreement;
3. The city caved in to CU's demands, refused to compel CU to allow the city to use land needed to protect Boulder residents, and refused to consider condemning the property, even though CU feared such a lawsuit would test its sovereignty;
4. The City's consultants developed plans with flaws and design features which violated fundamental engineering standards and CDOT design specifications;
5. The Water Resources Advisory Board, which the city council relies on to thoroughly vet engineering plans and advise the council, merely rubberstamped staff and consultants recommendations and did not catch flaws in the 2015 CH2M Hill plan, the 2018 Variant 2 plan, and the 2020 plans requiring millions of dollars of earthfill;
6. The project was not well-managed.

Below are several of the many engineering concepts developed by the city's engineering consultants illustrating why so much time and money was spent on this project. Several plans contained obvious flaws which violated basic engineering standards and which would never be approved. The city would be well advised to attempt to recover moneys paid for the development of the Variant II plans which were sold to the city council using a study which the consultant falsely claimed was a study of bridges and culverts across the world.

In 2000, a \$140,000 Taggart Engineering Associates South Boulder Creek drainage study recommended a 1,107 Acre Feet detention pond upstream of US 36 to protect residents against a 100-year flood. The detention pond is in approximately the same location as the current plan. The current detention pond is 469 acre feet, less than half the size of the original plan.

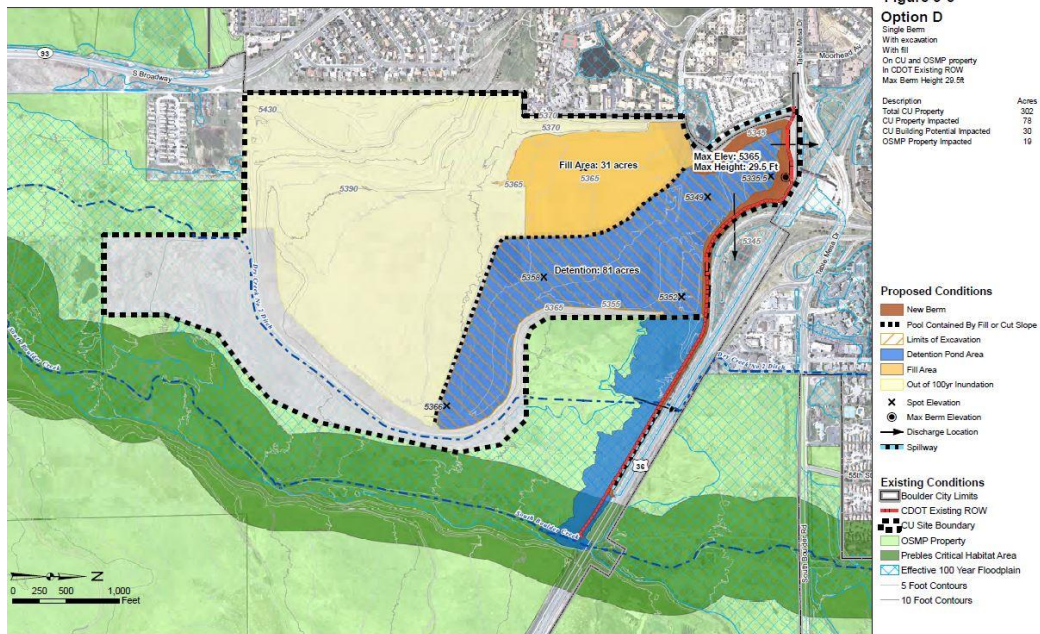


CU participated in the 2000 Taggart study and CU's representative Jeffrey Lipton insisted the consultant also develop and evaluate plans for a huge 71 foot high dam along the west side of South Broadway. Because of its high cost and complete obstruction of mountain views, the ludicrous idea was quickly dismissed, but only after wasting valuable time and money.



In **August 4, 2015**, based on the Water Resource Advisory Board's May 18, 2015 recommendation, the city council approved the \$35 million CH2M Hill South Boulder Creek Alternative D 100-year flood control plan.

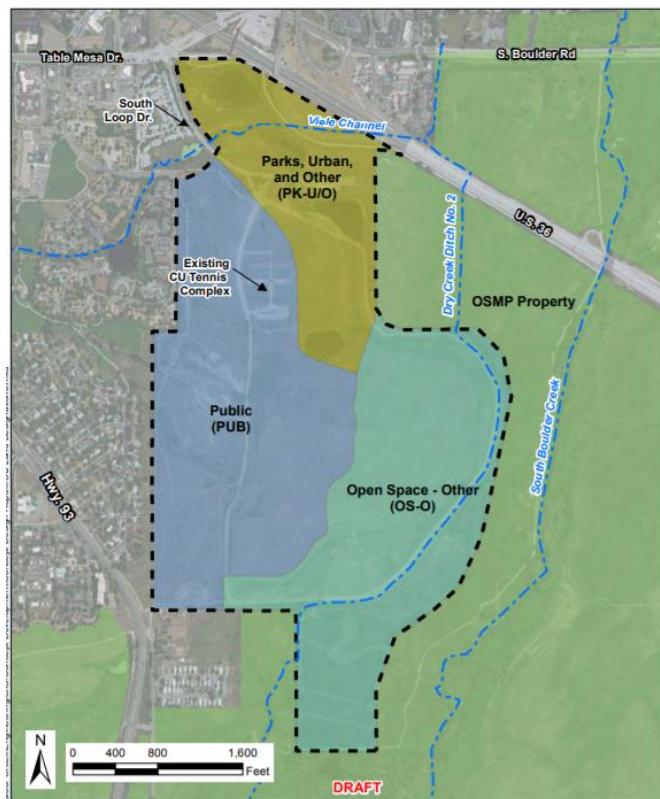
Stormwater Detention Upstream of US36
South Boulder Creek Flood Mitigation Project



Dan Johnson, an engineer and Chair of the WRAB was unconcerned with public testimony which called attention to the following obvious flaws.

- Viele Channel dead-ended into the upstream side of the dam providing no place for the water to go.
- The groundwater cutoff wall from the base of the dam/floodwall to bedrock along the entire length of the dam/floodwall from Table Mesa Drive up the hill to South Boulder Creek would completely block the westerly flow of groundwater causing groundwater to back up onto the abandoned CU South gravel pit and dry up State Natural Area grasslands on the other side of the highway.
- Without obtaining an easement from the Colorado Department of Transportation, the concrete floodwall along US 36 was located inside of the CDOT ROW.
- The excavated detention pond located below groundwater level would fill with groundwater and not be available to detain floodwaters.

The City Council subsequently used the defective 2015 flood control plan to define the boundary of PK-U/O property in the revised Boulder Valley Comprehensive Plan, which allocated insufficient land for flood control. For this reason CU is demanding the city import earthfill to provide the 129 developable acres shown in the erroneous BVCP map. The City Council would have been wise to wait until competent flood control plans were developed before using those plans to revise the BVCP.

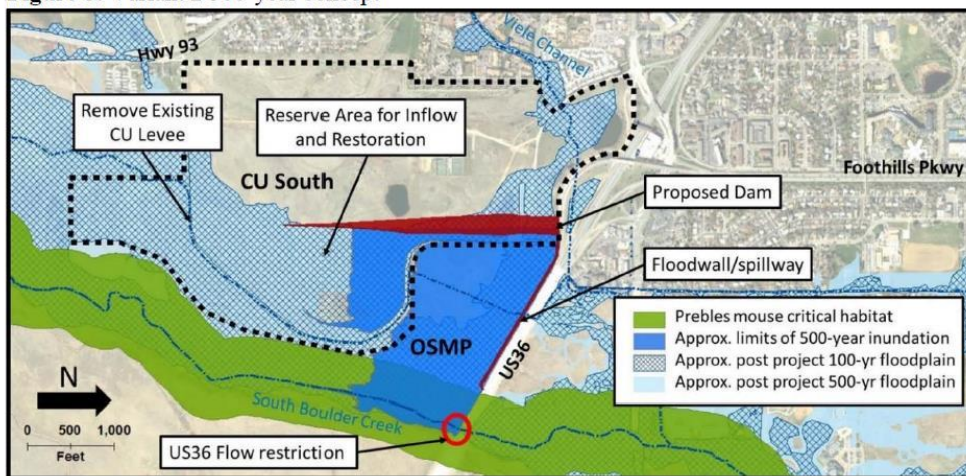


In **May 18, 2018**, the city hired a new consultant, RJH Consultants, Inc. to develop plans for the South Boulder Creek flood control project to address known problems with the 2015 CH2M Hill plan.

In 2018, the city's engineering staff, engineering consultant and the WRAB recommended the hazardous Variant II flood mitigation option which would severely constrict the size of the opening of the US 36 bridge over South Boulder Creek to the point there would be no freeboard to allow for the passage of floating debris.

That plan violated basic fundamental bridge design standards and was not in compliance with CDOT bridge design specifications; nonetheless the hazardous plan was CU's first choice as it primarily inundated City Open Space and not the CU South gravel pit.

Figure 8: Variant 2 500-year concept



Existing South Boulder Creek US 36 Underpass

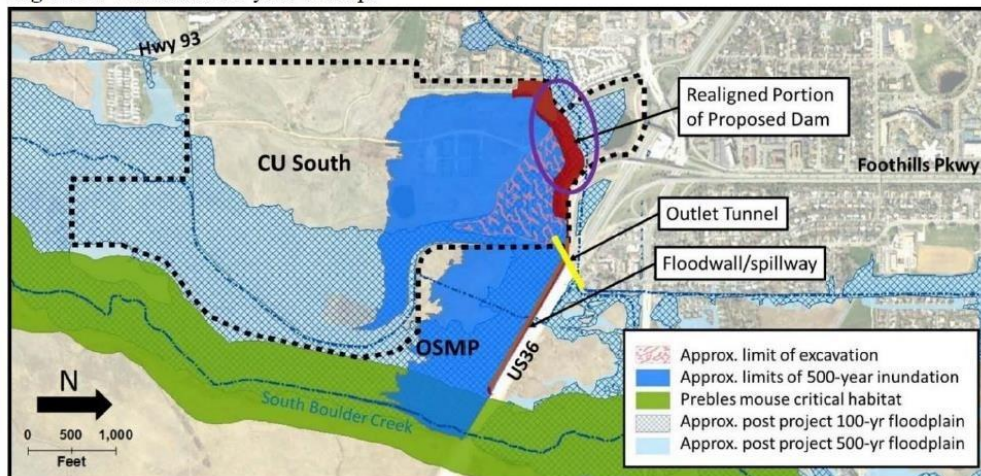


Variant II Constriction of South Boulder Creek US 36 Underpass



On **August 7, 2018** after a long public hearing, the City Council wisely rejected the consultant's, staff's and WRAB's recommendation for Variant II and approved the Variant 1 500-year South Boulder Creek flood control option.

Figure 5: Variant 1 500-year concept



February 5, 2019 City-CU Meeting. ***The Variant 1, 500-year concept footprint should be considered a fixed point in future annexation-related discussions about other future uses on the Public land use area of CU South.***

While the city was in a race against the clock until the next flood, in a **May 20, 2019** letter from CU to the City Council representatives Frances Draper and Derek Silva ordered the city to stop work on the development of preliminary designs for the Variant I 500-year flood control plan.

We are writing to you today to provide notice that the university, as the landowner, does not agree to Variant I 500. we are informing the city that any further expenditure for the development of preliminary designs for Variant I 500 should cease. Again, the university will not agree to that option. Neither of our organizations should expend further staff or financial resources to continue to pursue Variant I 500.

The city immediately caved in to CU's demand for more developable land and executed a \$112,700 engineering contract to study other options. The consultant's report stated: ***Placing earthfill on a portion of the CU Boulder South campus would be required for all of the options to provide CU with 129 acres of buildable area.*** To raise CU's tennis courts above the level of a 500-year flood, the city council voted to add \$10 million to our utility bills to pay for 360,000 cubic yards of fill to replace the sand and gravel previously quarried from the site.

February 25, 2020 After the Director of Utilities and CU staff met with city councilmembers two at a time to avoid the need for public notice, the city council, at a **February 25, 2020 study session with no public input**, agreed to eliminate the 500-year option from consideration. Boulder's Utilities Director stated that CDOT would not approve the Variant 1 500-year plan because the plan would not match existing conditions for flows under the US 36 bridge over South Boulder Creek. After being asked numerous times, city staff was not able to produce any evidence that existing conditions could not be met and that CDOT would not approve the 2018 Variant 1 500-year flood control plan.

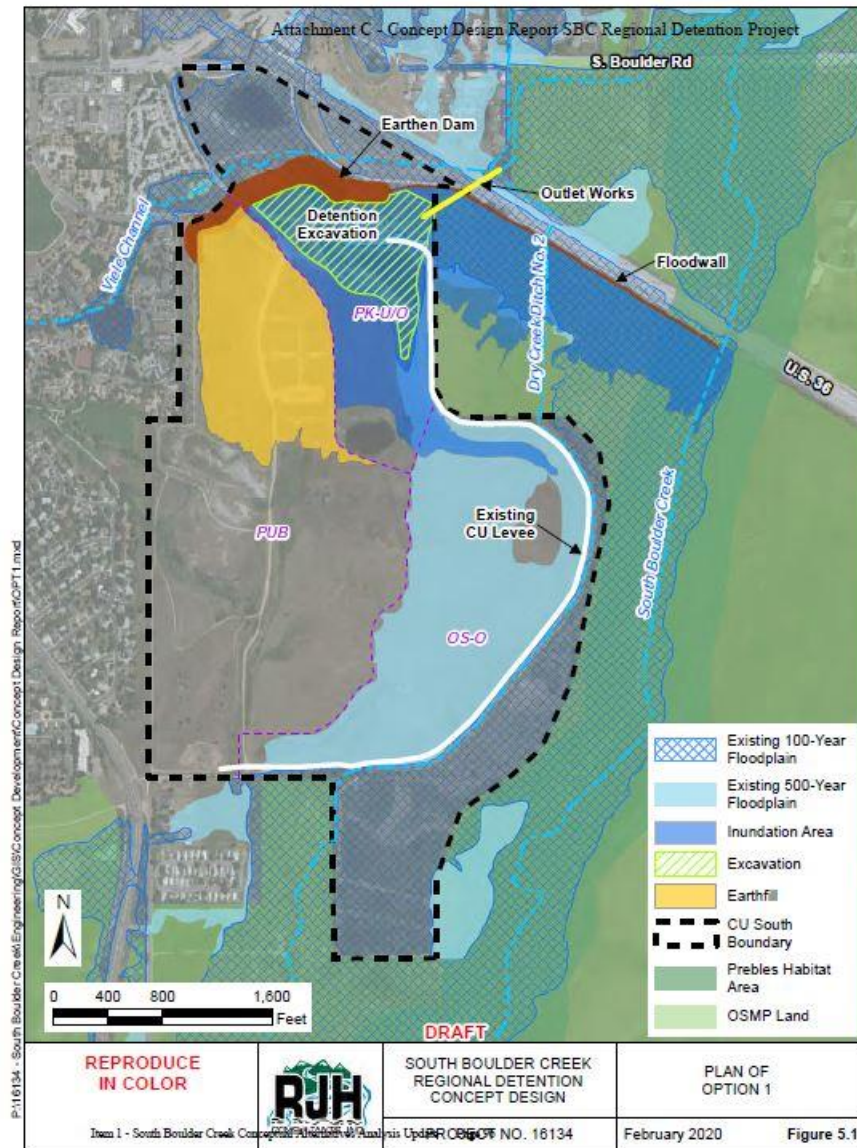
To meet CU's demand for 129 developable acres (there was no such assurance of 129 acres in the revised 2015 Boulder Valley Comprehensive Plan), city staff presented a summary of three options with differing flood protection levels for the 100-yr, 200-yr, and 500-yr storm events. During the study session with no public input, council indicated a preference to proceed with the \$66 million 100-yr flood protection alternative.

Table 3: Opinion of Probable Construction Cost

| Project Components | Option 1 (100-yr) | Option 2 (500-yr) | Option 3 (200-yr) |
|---------------------------|------------------------------|------------------------------|------------------------------|
| Regional Flood Detention | \$41M | \$47M | \$46M |
| Earth Fill | \$10M | \$34M | \$32M |
| SubTotal | \$51M | \$81M | \$78M |
| CU Impacts ⁽¹⁾ | \$15M | \$15M | \$15M |
| Total | \$66M | \$96M | \$93M |

Note: Table 3 figures have been rounded to the nearest million dollars

On **June 16, 2020** to satisfy CU's demands, the City Council voted to reject the previously approved \$35 million Variant 1 500-year flood protection plan and move forward with the following \$66 million 100-year option which included \$10 million to import 360,000 cubic yards of earthfill to refill a portion of the gravel pit to elevate it above the level of a 500-year flood. 360,000 cubic yards is enough dirt to fill an entire football field to the height of a 20-story building.



In numerous meetings, the City's Utilities Director and South Boulder Creek Project Manager insisted that \$10 million of earthfill was required to meet CU's demands, but after public outrage at using \$10 million of our stormwater utility fees to import 360,000 cubic yards of earthfill to replace material previously quarried from CU's depleted gravel pit, that number was miraculously reduced by two-thirds.

The following is an image of the most recent plan. In spite of the city's claims of substantial public engagement, there have been no opportunities for the public to comment on the development of the new plans.

