

**To:** Paul Glasgow and Victoria Simonsen, Town of Lyons

**From:** Robert Brakenridge

**Date:** February 21, 2020

Hello Town Planner and Town Administrator,

I am concerned that the Summit-sponsored Drainage Report does not address the recommendations of the town's Stormwater Master Plan. As far as I could tell, it does not reference it at all. It is thus not clear that the authors (Scott, Cox, and Associates) reviewed the Stormwater Plan, which made some very specific recommendations and included maps for the area that the new housing and roads are to be constructed in.

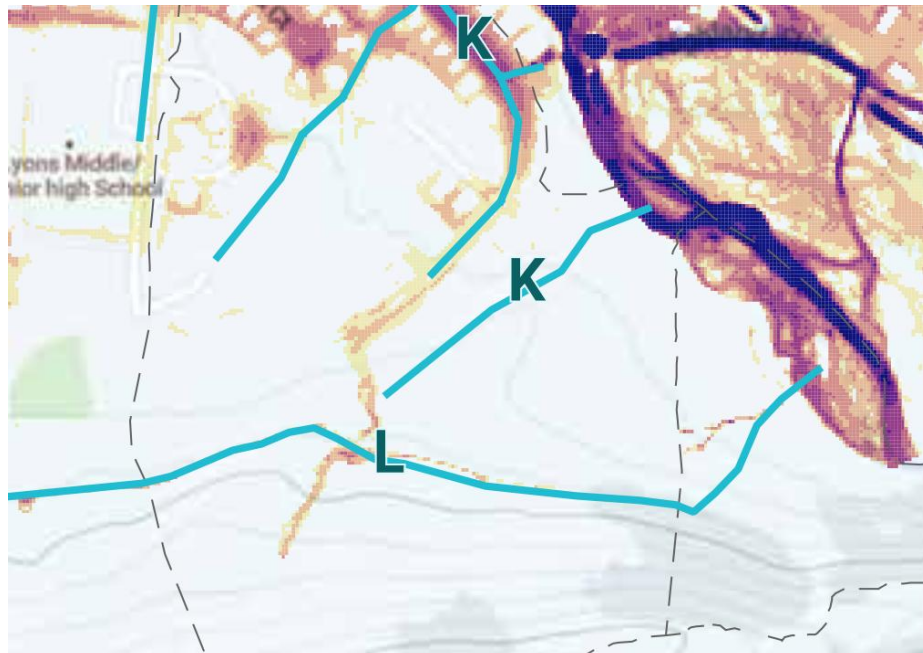
In particular, quoting from the Stormwater Plan:

page 40 "Flooding hazards in the Lyons Valley Park watershed are the result of development within the basin without adequate storm drain conveyance. The 18 inch storm drain throughout the upper reaches of the development was not designed to convey major storm events."

page 41 "The storm drain infrastructure installed with the development of Lyons Valley Park subdivision is a minor drainage system and lacks capacity to convey major storm events. This alternative proposes to increase the storm drain along the eastern alignment to convey the design flow for the 100 year storm."

page 42 "The South Ledge Ditch located south of Lyons Valley Park Subdivision intercepts runoff from the subwatershed. Formalizing the Ditch to convey stormwater east towards St Vrain Creek would reduce the tributary area contributing to the flooding hazards of Lyons Valley Park Subdivision. This alternative should be developed in coordination with the future development of Lyons Valley. A drainage feature around the south end of the currently platted lots would benefit the new construction as well as the existing homes in the neighborhood." ... and... "Breaches and overtopping of the existing (South Ledge) ditch are likely to continue to occur given the earthen embankment construction of the ditch. As the platted future development moves into the final plan approval process, careful coordination should identify the benefits to both existing and future homes in the area. And, when the cost of perimeter surface water conveyance (i.e. swale) is compared to sizing interior storm inlets and pipes sized to safely capture and convey the offsite flows, the cost-benefit should resolve any further limitations of the concept."

The authors of our Stormwater Plan proposed to route excess runoff per the graphic below (blue lines):



These alternative solutions, listed in the Plan, have the effect of both protecting the proposed new development along Carter Drive and Tract A, and also the existing homes in this portion of Lyons Valley Park.

My concern is that an important opportunity to reduce damage from future flooding in this area is being missed, and contrary to the Plan recommendations. Instead of reduction, we may see increased flooding. The review of the Development Plan is the best time to see if the "dots have been connected" and if, indeed, Lyons can "build back better" from the flood of 2013.

I have not carefully examined yet the engineering plans for Lyons Valley Townhomes, but believe the engineering and drainage features must already be accommodating the planned final grading and expected local runoff. That local runoff is only a small part of the issue, however. Instead, the Stormwater Master Plan, as noted, indicates that the existing 18 in storm sewer along parts of McConnell Drive is undersized. The new development will make this situation worse. Meanwhile, directly above the Townhomes, is a tall ridge and also a drainage, that drops down onto McConnell Drive and thence eastward along the street. Even without failure of the Ditch, the potential for flood damage is high (see route of that floodwater shown in the middle of the figure above).

As well, as noted in the Plan, while the Ditch may act to intercept this flow from smaller flood events, Ditch failure (or overtopping) during larger events is likely. It did occur in 2013: see 2 photos below. Overtopping of the Ditch occurred first here, above the Carter Drive area, then later to the west, ultimately causing considerable residential damage in the Welch Court area. Portions of the new development will be directly below the ditch and vulnerable to flash flooding unless steps are taken, as recommended in the Master Plan, to mitigate the situation. Note that this type of sudden-onset flooding by small streams, draining high topography



(whether or not the St Vrain is in flood), is common along the Front Range and it could pose a lethal hazard and potential for much damage if directed into a subdivision.

At the same time, the existence of the hazard, and the planned subdivision, do pose an opportunity for the Town: to reduce flooding not only in the area to be newly built, but also in the existing homes below. The Stormwater Master Plan even indicates that this might avoid the need to upgrade the storm sewer.

In summary, there is reason for concern that the present Drainage Report is inadequate. It does not reference the Stormwater Master Plan. The town might as well not have commissioned that study, and then gone on to set up a stormwater utility, if it is not put to use at this time by the Developer and the Town: at a location that was specifically studied and identified as a hazard area to be addressed.

In closing, a reminder of the reasons for establishing the stormwater enterprise utility, as quoted from the Town's web site:

"One of the greatest natural threats to Lyons is a stormwater inundation, due to a rain/weather storm. The Hazardous Incident Risk Assessment (HIRA) Report identified strategies to strengthen Lyons and protect people and structures from flooding, in the event of a significant storm which is a serious threat to Lyons.

The following services and programs are set initiatives of the enterprise:

Implement the Master Plan for drainage basins in the Town of Lyons.  
Prioritize projects for improvement, based on the Stormwater Master Plan.  
Improve existing stormwater facilities that have deteriorated.  
Work on drainage improvement projects that are designed and prioritized to provide cost-effective flood protection."

I am hopeful that my letter provides useful information, and that our town planning and engineering, and the Developer, can themselves examine this situation and make appropriate changes to keep the town on track towards reducing its exposure to damaging flooding and also comply with specific criteria for Development Plan approval.

Sincerely,  
Robert Brakenridge  
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Lyons