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Salt Lake County Commission Members
2001 South State Street N2-200
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Dear Salt Lake County Commission Members,

We four faculty are writing to comment on Agenda Item 17 of the upcoming Salt Lake County Meeting Agenda (28983), a discussion of proposed changes to the Foothills and Canyons Overlay Zone, in which Chapters 19.72 and 19.73 will be merged into a single Chapter 19.72. Jim Ehleringer is as an ecologist with 40+ years of ecological and environmental research experience at the University of Utah. Michelle Baker is an aquatic ecologist at Utah State University with 20+ years of aquatic ecology and environmental research experience. Thure Cerling is as a geologist with 35+ years of geological and hydrological research experience at the University of Utah. Paul Brooks is a hydrologist and ecosystem scientist at the University of Utah with 20+ years of hydrology and environmental research experience.

Of immediate concern is that any proposed merging of FCOZ guidelines and regulations to create the new FCOZ Chapter 19.72 should retain the vital 100-foot buffer zone for stream corridor and wetland protection. That is, please maintain the 100-foot buffer between stream and any land development as described in current Sections 19.72.030J and 19.73.080B into any revisions of the new buffer regulations.

There are many scientific reasons for these buffers and for the maintenance of a healthy vegetation buffer between stream and any land development. The issues are, of course, the maintenance of in-stream water quality, a healthy stream ecosystem, and valuable wildlife habitat. These objectives are accomplished by having an adjacent riparian vegetation buffer of sufficient width that it can both trap sediment flows and provide an opportunity for soil microbes to process any upslope nutrients and contaminants moving through shallow and deep groundwater into the stream. And please consider the many dimensions of "beneficial use" beyond traditional engineering and water quality metrics. To our citizens who enjoy the Wasatch Mountains, there is also a most important beneficial desire to maintain a healthy streamside view- and sound-scape, as well as property and quality-of-life values.

The scientific evidence supporting a 100-foot stream buffer and corridor are extensive. A recent 2014 review[1] of many science and engineering studies regarding minimum stream buffer distances concluded that a minimum distance of 30 meters (98 feet) was required for the functions expected of a stream buffer: subsurface nitrate removal, sediment trapping, reduced bank erosion, maintaining stream temperatures, and sustaining fish and macroinvertebrate communities. Fundamentally, this recommendation is driven by the hydrologic connectivity between subsurface water and the stream. Recent advances in this area demonstrate that hydrologic connectivity is related to the flashiness of the hydrology, regional topography, and heterogeneity in local geology. The steep, snowmelt driven, and geologically diverse Wasatch Front has all the characteristics that expand the lateral extent of hydrologic connectivity which is a major control on water quality throughout the region.

[1] B.W. Sweeney and J.D. Newbold. 2014. Streamside forest buffer width needed to protect stream water quality, habitat, and organisms: a literature review. Journal of the American Water Resources Association 50:560-584.

Thank you for the opportunity to provide comments into this important matter for long-term preservation of our valuable Wasatch Mountain resources.

Yours Sincerely,

James Ehleringer
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University of Utah
Member U.S. National Academy of Sciences

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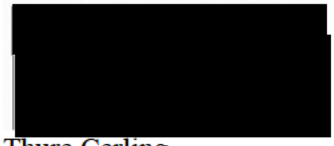
Utah State University
Principal Investigator of the statewide iUTAH Project



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