



January 22, 2019

Chris Neubecker
Town of Vail
Community Development Department
75 South Frontage Road
Vail, CO 81657

Dear Chris,

The Mauriello Planning Group (MPG) submitted a draft zoning text amendment to the Town of Vail in November 2018 for the purpose of modifying the density requirements for the Lionshead Mixed Use 1 Zone District. MPG represents the Treetops Condominium Association which is requesting a text amendment to the zoning regulations to amend Section 12-7H-12: Density (Dwelling Units per Acre). The applicant is requesting that residential density be changed to unlimited; but that all other zoning standards related to building height, GRFA, setbacks, parking, etc. remain unchanged. Therefore, the amendment would not impact the overall size of the structure, but the number of dwelling units within the structure would be unlimited by zoning.

The Town of Vail referred the proposed amendment to the Eagle River Water and Sanitation District to understand the potential impacts on water and wastewater service. Upon review, the current portfolio of ERWSD water supplies will adequately serve any reasonable density resulting from this zoning change, therefore, there is currently no concern related to water supply. The District is currently in the process of updating its Water Master Plan, and will evaluate improvements needed to meet future water demands resulting from the zone change during that process, but does not anticipate that immediate water system improvements would be required. However, wastewater service has conveyance and treatment capacity limitations that require additional analysis on potential impacts.

ERWSD completed a Wastewater Master Plan Update in 2017 in order to plan for and optimize its system for implementation of new nutrient regulations by the Colorado Department of Public Health and Environment at its wastewater treatment facilities in Vail, Avon and Edwards. The Plan recommended \$105m in capital improvements to the District's three wastewater treatment facilities and created an implementation schedule over the next 15 years that was designed to meet the new regulations while managing rate impacts to customers. System-wide, an average annual growth rate of 1.14% was assumed for the Vail Wastewater Treatment Facility service area over a 20-year planning horizon. One of the key assumptions of the 2017 Wastewater Master Plan Update involved the bypass of peak wastewater flows, historically observed at peak occupancy during the Christmas holiday week, to the Avon Wastewater Treatment Facility through the District's collection system. This peak flow by-pass forestalls costly treatment capacity enlargements at the Vail Wastewater Treatment Facility, which has significant site constraints.

The impact of unlimited residential density, while not impacting the building sizes allowed in Lionshead, could increase the number of internal plumbing fixtures, and therefore overall maximum wastewater flow that must be conveyed and treated by the District. In reviewing the analysis spreadsheet provided to

ERWSD by MPG on 1/4/19, it is apparent that the key assumption with regards to wastewater production is the assumed average unit size. In the spreadsheet, a value of 1,600 ft² is used, though it should be noted that the Treetops redevelopment is proposing an average unit size of 1,300 ft². Under this assumption, the projected number of units increases from 1,630 to 2,132. This is a 31% growth in units. Over a 20-year planning horizon, this is 1.5% average annual growth.

The expected growth based on the MPG spreadsheet analysis for Lionshead is therefore greater than what was used to develop the planned capacity for the Vail Treatment Facility in the 2017 Master Plan update. It is noted that the treatment capacity (after planned upgrades) required for CDPHE permitting is based on several important assumptions: growth over the entire service area, Inflow and Infiltration rates being held steady, and constant unit flow per single family equivalent (SFE). Therefore, if the assumptions in the MPG spreadsheet hold, other areas in the service area would need to average out the Lionshead growth, with some areas being slightly less than the assumed annual rate of growth in SFEs.

Based on the information currently provided, ERWSD does not foresee immediate problems with the proposed increased density at the Treetop site. However, the density value assumed in the MPG analysis for the entire Lionshead Mixed Use 1 Zone District is in fact unregulated and subject to market forces and developer preferences that could have more significant impacts if smaller units are built throughout the Zone District, which would result in increased wastewater flows. A sensitivity analysis was performed on the average unit size to better understand the impact that this value has on total units on parcels that are expected to be re-developed over the next 20 years. The impact of altering the assumed unit size with total number of units and average annual growth is shown below in Table 1. The results show density growth only in the parcels identified by MPG as having a “high” or “medium” expectation of being redeveloped.

Table 1. Sensitivity of annual growth rate on average new unit size in Lionshead.

Average Size of New Units (sq. ft)	Number of New Units	Total Future Number of Units	Average Annual Growth Rate over 20 Year Horizon
800	1,397	3,027	4.3%
1000	1,046	2,676	3.2%
1200	808	2,438	2.5%
1400	635	2,265	1.9%
1600	502	2,132	1.5%

If a balanced growth scenario does not happen, and overall growth exceeds that assumed in the Master Plan, or if the change in Lionshead density differs substantially from that assumed in the MPG analysis, wastewater flows could eventually exceed the treatment capacity of the Vail Wastewater Treatment Facility. Under that condition there are several results that may occur that would require a more thorough analysis than the referral response period allows: operations of the Vail treatment facility may differ from that assumed in the Master Plan update which could impact water rights and CDPHE permitting, e.g. by-passes to the Avon treatment facility may occur more frequently (note: the Vail to Avon by-pass also has finite capacity limitations), treatment capacity or conveyance constraints/limitations may accelerate the need for and expand the scope of capital improvements recommended in the 2017 Wastewater Master Plan Update, and the financial planning that resulted from the Master Plan update would need to be adjusted accordingly. This in turn could have bonding impacts that would affect wastewater rates across the entire District, and coupled with other planned improvements at the Avon and Edwards Wastewater Treatment Facilities could compound future rate increases.

Thank you for the opportunity to provide a referral response to the proposed zoning amendment. If you have any questions or need any further information, please let me know.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jason Cowles", with a stylized, cursive script.

Jason Cowles, PE
Engineer Manager

cc: Siri Roman
Len Wright
Dominic Mauriello