



January 31, 2020

Ms. Cindy Myers  
VP, Director of Land Entitlement Colorado  
Century Communities  
8390 E Crescent Parkway, Suite 650  
Greenwood Village, CO 80111

RE: Noise Analysis for Lagae Ranch Townhomes Site, Castle Pines, Colorado

Dear Ms. Myers:

Felsburg Holt & Ullevig (FHU) has prepared this letter to present the findings of our traffic noise evaluation completed for the Lagae Ranch property in the City of Castle Pines, Colorado (Figure 1). The purpose of the evaluation was to assess traffic noise levels for the property, which is being considered for construction of new homes.

## Project Overview

The Lagae Ranch property included in this analysis is west of I-25 between the Castle Pines Parkway and Happy Canyon Road interchanges on I-25 (Figure 1). FHU understands that Century Communities is considering new townhome construction at this location. FHU's noise analysis was based on the townhome development concept illustrated in Figure 1.

This noise analysis was based on comparisons with noise thresholds established by the Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA). Both agencies base their thresholds on a one-hour equivalent (or average) sound level called the Leq. FHWA has established a federal impact standard for residential areas at 67 decibels. CDOT has established a residential impact at a level "approaching" the FHWA standard, i.e., at 66 decibels. These thresholds are the basis for evaluating the calculated traffic noise levels described below.

This noise analysis evaluated current traffic noise levels from I-25 at the site. Lagae Road traffic was not considered as it is much less pervasive than I-25.

Please note that local topography is important to the traffic noise conditions at the site. I-25 is lower in elevation than the site. Therefore, the ground may block the transmission of noise to the site from some I-25 traffic. Any substantive changes in site topography from what FHU analyzed could invalidate the noise findings described below.

## Methods of Analysis

The traffic noise of concern for this evaluation is from I-25, which is east of Lagae Ranch (Figure 1). No other traffic noise sources were considered for this evaluation. Because traffic is the noise source of concern, FHU used common traffic noise evaluation tools and methods for the analysis. FHU calculated traffic noise levels using TNM Version 2.5 software. TNM is prescribed for traffic noise analysis by both CDOT and FHWA. FHU generally followed noise calculation methods described in CDOT'S *Noise Analysis and Abatement Guidelines*, adapted to fit the needs of this analysis.

As stated above, the Leq is a 1-hour average noise level and the daily peak traffic noise hour was targeted for analysis. I-25 traffic volumes were obtained from published online CDOT data (OTIS website) for 2019 and 5-6 PM was concluded to be the daily peak with approximately 11,750 vehicles. Traffic speeds were 75

miles per hour. Medium trucks and heavy trucks were modeled based on the vehicle counts provided in the CDOT data.

FHU used TNM to calculate noise levels for 40 model locations (Figure 1) to represent the site overall. The proposed finished ground surface data for Lagae Ranch used in the TNM modeling came from grading data provided by the Century Communities team. Noise levels were calculated for ground level outdoor locations, based on the site development plan provided to FHU.

## Results

Based on the calculation methods described above, most of the locations examined for Lagae Ranch would be below 66 decibels. However, 12 locations were found to have Leq levels of 66 decibels or greater (Table 1); thus, these locations would be above the CDOT noise threshold. These units were in buildings facing and near I-25 (Figure 1).

## Summary of Findings

Traffic noise levels for 40 locations at the Lagae Ranch Property were evaluated for 2019 traffic conditions as described above. Most of these ground level outdoor noise receptors at the site were calculated to be below 66 decibels (Figure 1). Several receptors near I-25 were calculated to be at or above 66 decibels (Table 1) and would be above the noise threshold established by CDOT for residential areas.

Please note these results are for the specific conditions described for this analysis. A different set of conditions or assumptions may produce different results. FHU endeavored to complete this noise study in a manner consistent with the care and skill ordinarily exercised by members of the acoustical profession currently practicing under similar circumstances.

Thank you for the opportunity to provide this service to Century Communities. We look forward to working with you on other projects in the future. If you have any questions regarding the analysis or this report, please contact me.

Sincerely,

**FELSBURG HOLT & ULLEVIG**



Dale Tischmak

Associate Environmental Scientist

Table I. Summary of Noise Results at or above 66 decibels

| Receptor | Leq (decibels) |
|----------|----------------|
| R01      | 70             |
| R02      | 69             |
| R03      | 69             |
| R04      | 68             |
| R05      | 68             |
| R06      | 69             |
| R07      | 69             |
| R08      | 70             |
| R09      | 67             |
| R22      | 66             |
| R23      | 67             |
| R30      | 66             |

**Figure I. Lagae Ranch Property and Traffic Noise Results, Castle Pines, Colorado**

