Town of Vail
Attn: Tom Kassmel
75 S. Frontage Road
Vail, CO 81657

March 8, 2021

Re: Vail Children's Garden Residential Parking Analysis – Affordable Housing Apartments
Vail, Colorado

Purpose:

This memorandum was developed to give a recommendation for the affordable housing apartments being proposed as part of Triumph's Vail Children's Garden Residential development project. The recommendation is based upon two methodologies.

- Institute of Transportation Engineers' (ITE) parking demand data
- Local parking rates at comparable apartment complexes

National Parking Rate:

The Institute of Transportation Engineers' *Parking Generation Manual*[1] states that the average peak period parking demand for a mid-rise apartment (Land Use #221) is 0.71 spaces per dwelling unit. The statistic is given based upon the 95th Percent Confidence Interval for a nationwide study of 43 apartment complexes. The 95th Percent Confidence Interval indicates that there is a 95% likelihood that the parking demand will fall within 0.61 to 0.81 parking spaces per unit. These rates were taken in dense multi-use urban complexes throughout the United States and are located within ½ mile to rail transit. The *Parking Generation Manual* does not specify the number of bedrooms for the multifamily units, but given the broad range of studies, it is anticipated that the individual studies contained a mix of 1, 2, and 3-bedroom units.

Observed Local Parking Rate:

As stated in the *Parking Generation Manual*, "The quality and quantity of parking demand data vary significantly by land use code. The *Parking Generation Manual* should be considered only the beginning point of information to be used in estimating parking demand. Local conditions and area type can influence parking demand. The wide array of data in the manual blends many site conditions and may not best reflect a particular local condition. Therefore, a survey of a site in a comparable local condition should always be considered as one potential means to estimate parking demand."

Therefore, local data can provide another viewpoint of parking for Vail's local workforce housing. The Middle Creek Village Apartments located directly west of the Children's Garden site have similar characteristics to the proposed residential apartments. They primarily serve work force housing, have

[1] *Parking Generation Manual*, 5th Edition, Institute of Transportation Engineers, 2019

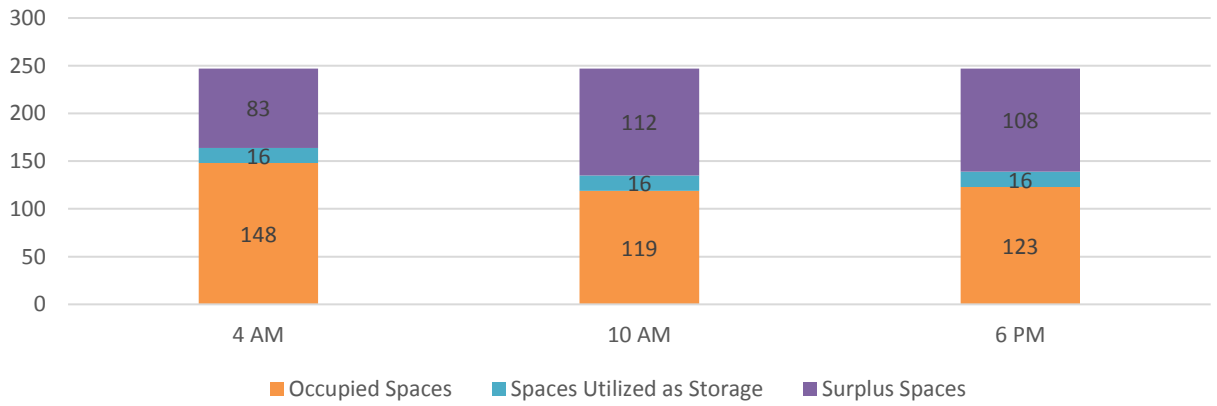
similar amenities, and have direct access to Vail's transit system. The site is located within walking and bus proximity to recreation and amenities.

Parking counts were performed at the Middle Creek Village Apartments on December 29, 2020. Counts were taken at 4:00AM, 10:00AM, and 6:00PM. Results are shown in **Table 1** and **Figure 1** below.

Table 1: Middle Creek Village Parking Count Data for December 29, 2020

Time	Occupied Parking Spaces	Parking Spaces Used as Storage	Unoccupied Parking Spaces	Total Parking Spaces
4 AM	148	16	83	247
10 AM	119	16	112	247
6 PM	123	16	108	247

Figure 1: Middle Creek Village Parking Count Data for December 29, 2020



The observed parking rate is as shown in **Table 2**. The spaces used as storage were not included in this calculation.

Table 2: Middle Creek Village Observed Parking Rates

Time	Parking Rate (spaces per DU)
4 AM	1.04
10 AM	0.84
6 PM	0.87

It should be noted that there is a high percentage of surplus parking at Middle Creek. This is evident based upon the overnight parking spaces (83) as well as sixteen (16) spaces being used as "storage." A significant difference between the Middle Creek Village apartments and the proposed Children's Garden is the amount of surplus parking that will be made available.

Proposed Parking Rate:

A parking rate of **0.71** spaces per dwelling unit consistent with the ITE rate is recommended for the Children's Garden site. Triumph Development is proposing to provide 55 parking spaces for 72 affordable housing apartments. This equates to a parking rate of **0.76** spaces per unit.

The parking rate observed at the adjacent Middle Creek Village is higher that the ITE parking rate and the proposed Children's Garden rate. This could be due to the following reasons:

- There is a significant number of excess parking spaces available. This encourages residents to use these underutilized spaces in inefficient ways.
- It is evident that storage was being utilized at the site. If the available parking were closer to the actual parking demand, the storage likely would not occur.
- It is possible that some vehicles could also be used as storage on site. However, it is difficult to discern which of these vehicles might be utilized as storage.

The Children's Garden site should utilize the parking management strategies to best manage the available parking spaces. Strategies include the following recommendations:

- Allocation of parking spaces per tenant or unit, including seasonal variations
- Promotion of bicycle or vehicle share and/or shuttle programs
- Provision of secured and protected bike parking and storage
- Guest parking provisions and management
- Off-site vehicle storage

Therefore, with proper parking management strategies, it is anticipated that a parking rate of **0.71** spaces per unit will be adequate for the proposed workforce housing facility.

Please call if you would like any additional information or have any questions regarding this matter.

Sincerely,
McDowell Engineering, LLC

Kari J. McDowell Schroeder, PE, PTOE
Traffic Engineer

Enc: ITE Parking Generation Manual, 5th Edition, Multifamily Housing (Mid-Rise) (221), Page 116

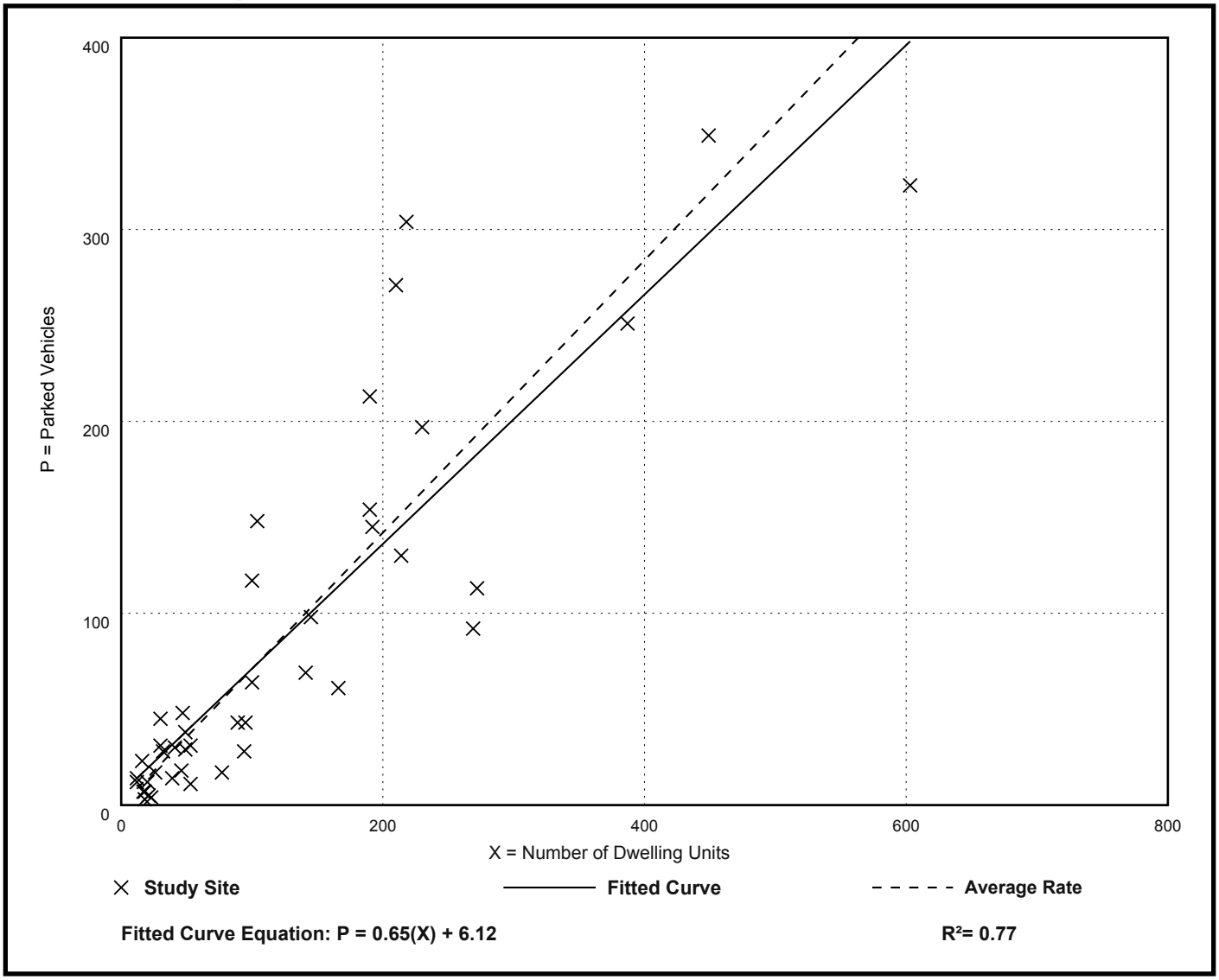
Multifamily Housing (Mid-Rise)
(221)

Peak Period Parking Demand vs: Dwelling Units
On a: Weekday (Monday - Friday)
Setting/Location: Dense Multi-Use Urban (< 1/2 mile to rail transit)
Peak Period of Parking Demand: 10:00 p.m. - 5:00 a.m.
Number of Studies: 43
Avg. Num. of Dwelling Units: 121

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.71	0.17 - 1.50	0.47 / 1.17	0.61 - 0.81	0.32 (45%)

Data Plot and Equation



Fitted Curve Equation: P = 0.65(X) + 6.12

R^2= 0.77