



**SM ROCHA, LLC**

TRAFFIC AND TRANSPORTATION CONSULTANTS

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November 9, 2020

Donald Provost  
Canadian Blue Fescue, LLC  
5750 DTC Parkway, Suite 210  
Greenwood Village, Colorado 80111

**RE: Promenade at Castle Rock, Block 3A / Traffic Generation Analysis  
Castle Rock, Colorado**

Dear Mr. Donald Provost,

SM ROCHA, LLC is pleased to provide traffic generation information for the development entitled Promenade at Castle Rock, Block 3A. This development is located near the intersection of Castle Rock Parkway and Promenade Parkway in Castle Rock, Colorado.

The intent of this analysis is to present traffic volumes likely generated by the proposed development, provide a traffic volume comparison to previous land use assumptions approved for the development site, and consider potential impacts to the adjacent roadway network.

The following is a summary of analysis results.

### **Site Description and Access**

Land for the development is currently vacant and surrounded by a mix of commercial, residential, and institutional land uses. The proposed development is understood to entail the new construction of various multifamily buildings accommodating 300 dwelling units, an approximate 40,000 square foot office building, and various retail buildings totaling approximately 22,000 square feet.

Proposed access to the development is provided at the following locations: one right-in / right-out access onto Promenade Parkway at an existing curb cut near the northeastern half of the development area (referred to as Access A), and one full-movement access onto Promenade Parkway at the existing roundabout intersection (referred to as Access B).

General site and access locations are shown on Figure 1.

A conceptual site plan, as prepared by 505Design, is shown on Figure 2. This plan is provided for illustrative purposes.









**PROMENADE AT CASTLE ROCK, BLOCK 3A**

*Traffic Generation Analysis*

**SM ROCHA, LLC**

*Traffic and Transportation Consultants*

**Figure 2  
SITE PLAN**

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## Vehicle Trip Generation

Standard traffic generation characteristics compiled by the Institute of Transportation Engineers (ITE) in their report entitled Trip Generation Manual, 10<sup>th</sup> Edition, were applied to the proposed land uses in order to estimate the average daily traffic (ADT) and peak hour vehicle trips. A vehicle trip is defined as a one-way vehicle movement from point of origin to point of destination.

The approved transportation impact analysis<sup>1</sup> prepared for the overall development area used trip generation rates from ITE's Trip Generation Manual, 9<sup>th</sup> Edition, and included 158,631 square feet of "Shopping Center" land use in the same development area as currently proposed with this project. Trip generation estimates used by the previously approved transportation impact analysis are included for reference in Appendix A.

It should be noted that the previously approved transportation analysis considered the noon peak traffic hour in its analysis rather than the morning peak traffic hour. Referencing ITE's Trip Generation Manual, 9<sup>th</sup> Edition, the previously approved analysis compared percentages of daily traffic entering and exiting the proposed site from noon-1pm and 5pm-6pm in order to derive lunch peak traffic hour rates.

In order to follow guidelines defined within the project's pre-application notes dated 08/28/2020, and pursuant to Section 7.3.4 of the Town's design standards<sup>2</sup>, this analysis will consider both morning and afternoon peak traffic hours. Additionally, in order to provide consistency with trip generation rates, this analysis will also apply rates from ITE's Trip Generation Manual, 10<sup>th</sup> Edition, to the previously approved land use. Comparison of trip generation data from ITE's 9<sup>th</sup> Edition versus 10<sup>th</sup> Edition for Shopping Center land concludes the 9<sup>th</sup> Edition provides slightly higher rates. Therefore, applying ITE's 10<sup>th</sup> Edition trip generation rates to the previously approved land use provides for a more conservative comparison.

Table 1 presents average trip generation rates for previously approved land uses and for the development area proposed. Use of average trip generation rates presents a conservative analysis. ITE land use codes 221 (Multifamily (Mid-Rise)), 710 (General Office Building), and 820 (Shopping Center) were used for analysis because of their best fit to the proposed land use descriptions.

**Table 1 – Trip Generation Rates**

ITE  CODE                    LAND USE                    UNIT			TRIP GENERATION RATES						
			24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
221	Multifamily Housing (Mid-Rise)	DU	5.44	0.09	0.27	0.36	0.27	0.17	0.44
710	General Office Building	KSF	9.74	1.00	0.16	1.16	0.18	0.97	1.15
820	Shopping Center	KSF	37.75	0.58	0.36	0.94	1.83	1.98	3.81

Key: KSF = Thousand Square Feet Gross Floor Area. DU = Dwelling Units.  
Note: All data and calculations above are subject to being rounded to nearest value.

<sup>1</sup> Promenade at Castle Rock, Felsburg Holt & Ullevig, January 2015.

<sup>2</sup> Transportation Design Criteria Manual, Town of Castle Rock, December 2018.

Table 2 summarizes the projected ADT and peak hour traffic volumes likely generated by the land use area proposed and provides comparison to traffic volume estimates for the previously approved land use.

**Table 2 – Trip Generation Summary**

ITE  CODELAND USESIZE				TOTAL TRIPS GENERATED						
				24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
					ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
<u>Block 3A - Previously Approved</u>										
820	Shopping Center	158.4	KSF	5,978	92	57	149	290	314	603
Total:				5,978	92	57	149	290	314	603
<u>Block 3A - Proposed</u>										
221	Multifamily Housing (Mid-Rise)	300	DU	1,632	28	80	108	81	51	132
710	General Office Building	40.0	KSF	390	40	6	46	7	39	46
820	Shopping Center	22.0	KSF	831	13	8	21	40	44	84
Proposed Total:				2,852	81	94	175	128	134	262
Difference Total:				-3,126	-11	38	26	-161	-180	-342

Note: All data and calculations above are subject to being rounded to nearest value.

As Table 2 shows, the proposed development area has the potential to generate approximately 2,852 daily trips with 175 of those occurring during the morning peak hour and 262 during the afternoon peak hour. Table 2 further shows how proposed development traffic volumes, in general, do not exceed those approved in the overall Promenade at Castle Rock transportation impact analysis.

### Adjustments to Trip Generation Rates

The previously approved Promenade at Castle Rock transportation impact analysis included trip generation reductions caused by internal capture, pass-by link trips, and by the existing Outlets and residential uses along Castlegate Drive West. In order to provide consistency within this analysis, the same reduction rates and methods were incorporated to the proposed land uses in Table 2. Similar to the previously approved analysis, internal capture reductions associated with the existing Outlets and residential land uses were only applied to the Shopping Center land use, and pass-by trip reductions did not include the proposed residential land use.

Table 3 summarizes the projected ADT and peak hour traffic volumes likely generated by the land use area proposed and provides comparison to traffic volume estimates for the previously approved land use, with trip reductions applied.

**Table 3 – Trip Generation Summary with Reductions**

ITE  CODELAND USESIZE				TOTAL TRIPS GENERATED						
				24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
					ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
<u>Block 3A - Previously Approved</u>										
820	Shopping Center	158.4	KSF	5,978	92	57	149	290	314	603
Internal Trip Reduction:				30%	30%	30%	30%	20%	20%	20%
Trips to Adj. Existing Development:				6.2%	4.2%	4.2%	4.2%	5.3%	5.3%	5.3%
Pass-By Trip Reduction:				20%	15%	15%	15%	20%	20%	20%
Total:				2,977	51	31	82	170	184	354
<u>Block 3A - Proposed</u>										
221	Multifamily Housing (Mid-Rise)	300	DU	1,632	28	80	108	81	51	132
710	General Office Building	40.0	KSF	390	40	6	46	7	39	46
820	Shopping Center	22.0	KSF	831	13	8	21	40	44	84
Internal Trip Reduction:				30%	30%	30%	30%	20%	20%	20%
Trips to Adj. Existing Development:				6.2%	4.2%	4.2%	4.2%	5.3%	5.3%	5.3%
Pass-By Trip Reduction:				20%	15%	15%	15%	20%	20%	20%
Proposed Total:				896	7	56	62	58	28	86
Difference Total:				-2,081	-44	24	-20	-112	-156	-269

Note: All data and calculations above are subject to being rounded to nearest value.

Upon build-out and with consideration of applicable trip reductions, Table 3 illustrates that the proposed development has the potential to generate approximately 896 daily trips with 62 of those occurring during the morning peak hour and 86 during the afternoon peak hour. Table 3 further shows how proposed development traffic volumes, in general, do not exceed those approved within the Promenade at Castle Rock transportation impact analysis.

### Vehicle Trip Generation Comparison & Development Impacts

As Table 3 shows, the proposed development, in general, does not exceed traffic volumes approved for the area in comparison to previously projected volumes for the overall development area. These volumes are not likely to negatively impact operations of adjacent roadways or intersections. The study intersections of Promenade Parkway with Castle Rock Parkway and Factory Shops Boulevard are expected to have operations similar to or better than results shown in the approved transportation impact analysis.

## Conclusion

This analysis assessed traffic generation for the Promenade at Castle Rock, Block 3A development, provided a traffic volume comparison to previous land use assumptions approved for the development site, and considered potential impacts to the adjacent roadway network.

It is our professional opinion that proposed site-generated traffic is expected to create no negative impact to traffic operations for the surrounding roadway network and proposed site accesses, and is in compliance with the Promenade at Castle Rock transportation impact analysis.

We trust that our findings will assist in the planning and approval of the Promenade at Castle Rock, Block 3A development. Please contact us should further assistance be needed.

Sincerely,

**SM ROCHA, LLC**

*Traffic and Transportation Consultants*



Brandon Wilson  
Traffic Engineer



Fred Lantz, PE  
Traffic Engineer

## APPENDIX A

### Referenced Trip Generation Estimates



### **Trip Generation Estimates Promenade at Castle Rock Castle Rock, CO**

Land Use	ITE Code	Quantity		Trip Generation Rates <sup>(1)</sup>								Vehicle-Trips Generated				Vehicle-Trips Generated			
				Average Weekday	Lunch Peak-Hour <sup>(2), (3)</sup>		PM Peak-Hour		Average Saturday	Saturday Peak-Hour <sup>(4)</sup>		Average Weekday	Lunch Peak-Hour		PM Peak-Hour		Average Saturday	Saturday Peak-Hour	
					In	Out	In	Out		In	Out		In	Out	In	Out		In	Out
Block 1																			
Shopping Center	820	171.410	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	7,319	340	300	305	331	8,565	430	397
Block 2																			
Shopping Center	820	64.195	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	2,741	127	112	114	124	3,208	161	149
Block 3A																			
Shopping Center	820	158.361	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	6,762	314	277	282	306	7,913	397	366
Block 3B																			
Apartment	220	360	DU	6.65	0.17	0.14	0.40	0.22	6.39	0.29	0.23	2,394	62	49	145	78	2,300	105	82
Block 4A																			
Shopping Center	820	38.187	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	1,631	76	67	68	74	1,908	96	88
Block 4B																			
Shopping Center	820	161.169	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	6,882	319	282	287	311	8,054	404	373
Block 5																			
Shopping Center	820	79.675	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	3,402	158	139	142	154	3,981	200	184
Block 6																			
Shopping Center	820	251.184	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	10,726	498	439	447	485	12,552	630	581
Block 7																			
Shopping Center	820	23.329	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	996	46	41	42	45	1,166	58	54
Block 8																			
Shopping Center	820	45.077	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	1,925	89	79	80	87	2,252	113	104
Block 9																			
Shopping Center	820	7.414	KSF	42.70	1.98	1.75	1.78	1.93	49.97	2.51	2.31	317	15	13	13	14	370	19	17
Total Trips												45,094	2,044	1,799	1,926	2,007	52,270	2,611	2,396
Internal Trips												13,528	576	576	393	393	15,681	751	751
Pass-by Trips												5,834	193	193	292	292	5,143	249	249
Internal Trips from Existing Outlets & Apartments												2,807	81	81	104	104	3,766	134	134
Total "Net New" External Trips												22,925	1,193	948	1,137	1,218	27,680	1,477	1,262

### Notes:

(1) Source: "Trip Generation," Institute of Transportation Engineers, 9th Edition, 2012.

(2) Lunch Peak rate for Shopping Center land use was derived based on a comparison of the percentage of daily traffic entering/exiting the site from noon-1:00 p.m. and 5:00-6:00 p.m., as found in Table 1 on p. 1558 of "Trip Generation"

(3) Lunch Peak rate for Apartments land use was assumed to be 1/2 of the rate for the PM peak hour of adjacent street traffic.

(4) The directional distribution for Apartments during the Lunch and Saturday peak hour of generator was assumed to be 56% entering and 44% exiting, based on the directional distribution percentages for LU 210 and LU 230 on Saturday.