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February 10, 2022

Mr. Aaron Thompson
Aperio Property Consultants, LLC
4032 Defoe Street
Strasburg, CO 80136

Re: Moore Lumber at the Meadows Office
Building Project
Castle Rock, CO (DBE #220040)

Dear Mr. Thompson:

I have completed the preparation of a traffic conformance letter for the proposed Moore Lumber at the Meadows Office Building project. The proposed Moore Lumber at the Meadows Office Building project is located near the intersection of Meadows Parkway and Moore Lumber at the Meadows. Figure 1 depicts the precise location of the proposed Moore Lumber at the Meadows Office Building project. The site is bounded by vacant land on the west, north, and south, and Moore Lumber at the Meadows on the east.

Introduction

When completed, the proposed Moore Lumber at the Meadows Office Building project will contain 13,700 square feet of general light industrial space and 3,200 square feet of general office building spaces. The site will have one access onto Moore Lumber at the Meadows. Figure 2 depicts the proposed site plan for the proposed Moore Lumber at the Meadows Office Building project. This site plan is under review by the Town of Castle Rock and may change as a result of this review.

Background

A master traffic impact study was prepared for the Meadows development which is generally located west of the BNSF rail line and north of East Wolfensberger Road. An addendum was prepared to the original master traffic impact study by FHU in March 2018. Appendix A contains selected pages from this report. This addendum focused on Filings 17, 18, and 20. Figure 3 depicts the boundaries of these three filings. Figure 4 focuses on Filing 17. Figure 4 assigns area numbers to the five areas comprising Filing 17. The proposed Moore Lumber at the Meadows Office Building project is located in northwest corner of Area 2.

When the addendum was prepared, FHU did not assign specific land use activity to a particular lot, so it is not possible to assess how the proposed Moore Lumber at the Meadows Office

Building project compares to what was assumed in the addendum. So, the approach being taken in this traffic conformance letter to estimate the daily and peak-hour trip generation estimate for the lots that have been developed in Filing 17 and add to that total the number of daily and peak-hour trip generation estimate for the proposed flex-office project. This total trip generation estimate will be compared to the total trip generation estimate in the addendum. If the trip generation estimate contained in the addendum is not exceeded, no further analysis will be needed.

Vehicle Trip Generation Estimates

The amount of traffic that is being generated by Filing 17 at full build out is contained in the attached Table 1. As can be seen in Table 1, Filing 17 is expected to generate 30,985 daily vehicle-trips with 2,565 vehicle-trips occurring in the AM peak-hour (1,696 vehicles entering and 895 vehicles leaving Filing 17) and 2,752 vehicle-trips occurring in the PM peak-hour (1,126 vehicles entering and 1,626 vehicles leaving Filing 17). The trip generation estimates contained in the addendum are based on the 9th Edition of the Institute of Transportation Engineers *Trip Generation* report.

Five lots have already been developed within Filing 17. As can be seen in the attached Table 1, these five lots are expected to generate 3,363 daily vehicle-trips with 248 vehicle-trips occurring in the AM peak-hour (171 vehicles entering and 77 vehicles leaving Filing 17) and 262 vehicle-trips occurring in the PM peak-hour (113 vehicles entering and 149 vehicles leaving Filing 17). The proposed Moore Lumber at the Meadows Office Building project is expected to have 13,700 square feet of general light industrial space and 3,200 square feet of general office space. When completed the proposed flex-office space is expected to generate 99 daily vehicle-trips with 14 vehicle-trips occurring in the AM peak-hour (12 vehicles entering and two vehicles leaving the site) and 13 vehicle-trips occurring in the PM peak-hour (two vehicles entering and 11 vehicles leaving the site). The estimated trips for the five existing lots and the proposed flex-office project are based upon trip generation rates published by the Institute of Transportation Engineers in the 10th Edition, 2017, of *Trip Generation* report.

As can be seen in Table 1, the five existing lots and the proposed flex-office project account for less than 13 percent of the estimate contained in the Arterial Street Analysis Plan Addendum Traffic Impact Analysis report dated March 2, 2018. There is approximately 38.2 acres of land that has not been developed.

Conclusion

At this point in the development of Filing 17, there appears to be enough available daily and peak-hour trips to not require an update to the Arterial Street Analysis Plan Addendum Traffic Impact Analysis report dated March 2, 2018.

* * *

This completes my traffic conformance letter for the proposed Moore Lumber at the Meadows Office Building project. Please feel free to call if you need any additional information regarding this project.

Respectfully submitted,

DB Enterprise, LLC

By:

Dave M
Dave L. Ruble Jr., P.E.



DLR/bar

Enclosures:

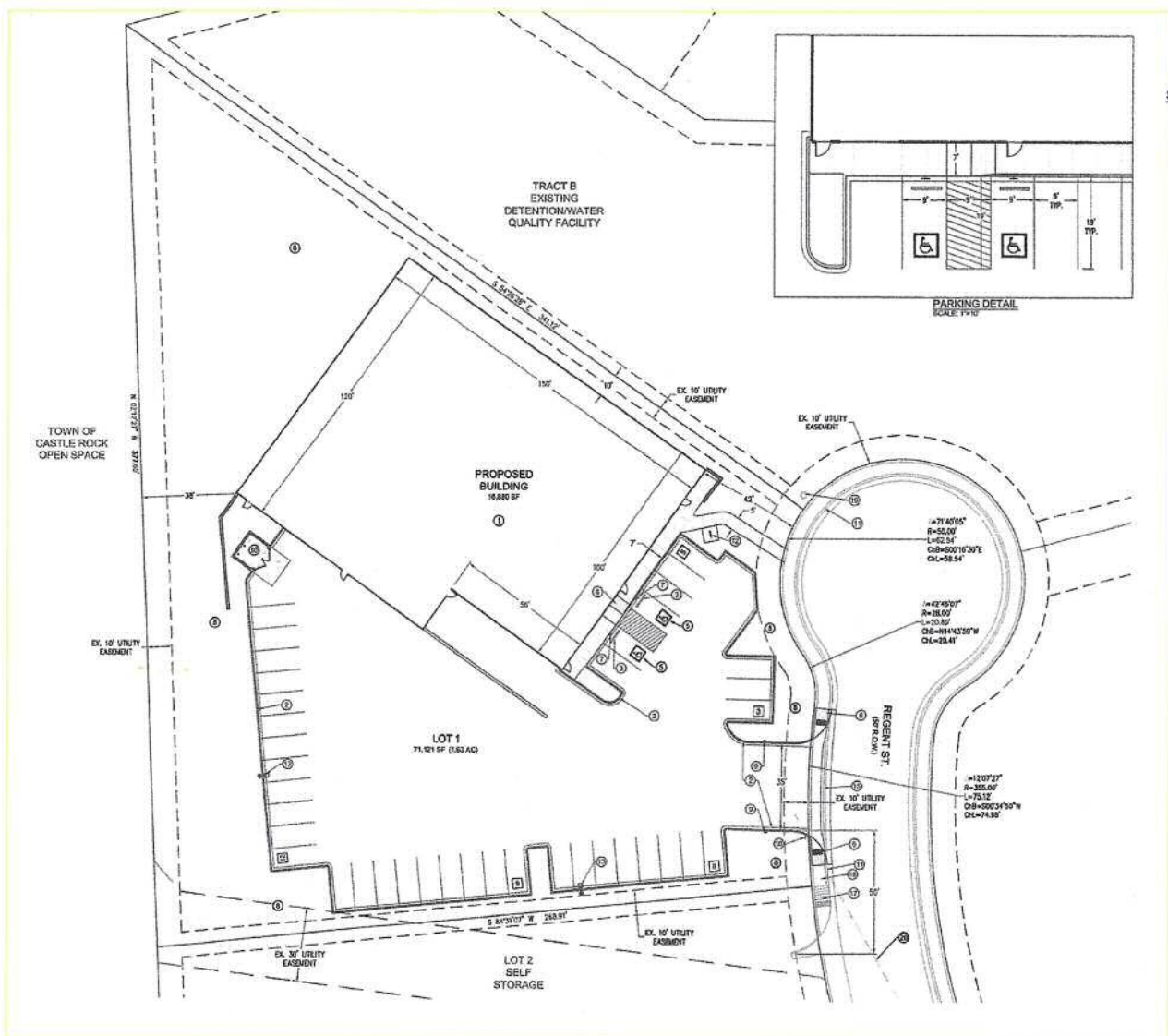
Figures 1-4

Table 1

Appendix A – Selected pages from the Arterial Street Analysis Plan Addendum Traffic Impact Analysis report dated March 2, 2018



Figure 1
Vicinity Map



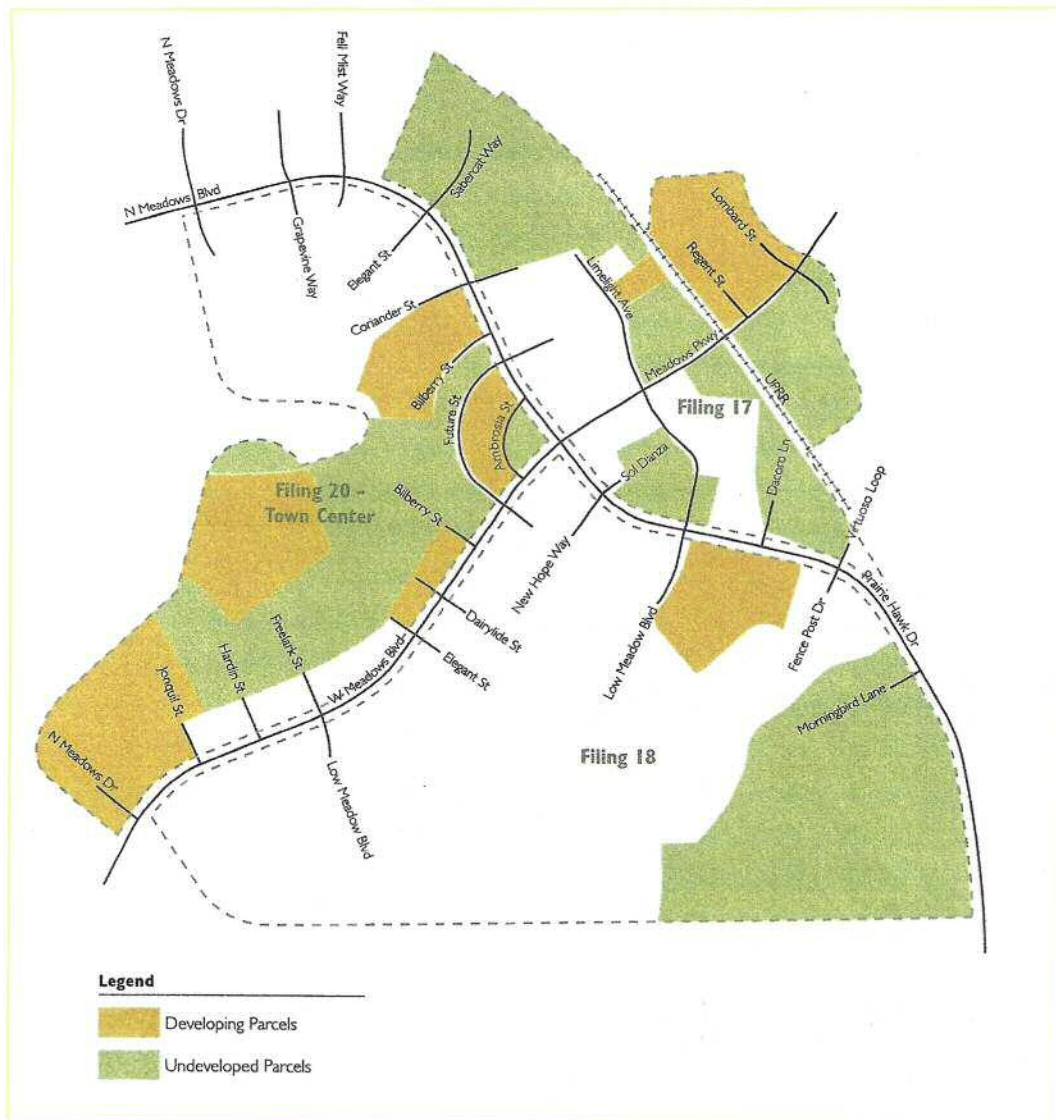


Figure 3
Filings 17, 18, and 20 Layout



Figure 4
Filing 17 Layout

Table 1
Estimated Vehicle Trip Generation
Moore Lumber at the Meadows Office Building
Castle Rock, Colorado
(DBE #220040; February, 2022)

[illegible]

Notes:

- (1) Source: "Trip Generation", Institute of Transportation Engineers, 10th Edition, 2017.
 (2) Based on calculation below
 (3) Used the PM trip generation rate which is what ITE shows as the trip generation rate for the AM and PM Peak-Hour of the Generator
 (4) KSF = 1,000 square feet

Automated Car Wash Daily Trip Generation Rate (based on a generic 4,000 square foot automatic car wash facility)

5.54 (Self-Serve Car Wash PM Peak-Hour Trip Generation Rate)	0.051
108 (Self-Serve Car Wash Daily Trip Generation Rate)	

$$\frac{57 \text{ Trips in the PM Peak-Hour}}{0.051} = 1,118 \text{ Daily Vehicle Trips}$$

$$\frac{1,118 \text{ Daily Vehicle Trips}}{4,000 \text{ Square-Feet}} = 279.5 \text{ Daily Trips per 1,000 SF}$$

Appendix A
Selected Pages from
Arterial Street Access Plan Addendum
March 2, 2018

ARTERIAL STREET ACCESS PLAN ADDENDUM

**Filing 17, Filing 18 &
Filing 20 (Town Center)
in The Meadows**

Prepared for:

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DEVELOPMENT SERVICES
APPROVED

FHU Reference No. 117256-01

March 2, 2018
4th Edition

by kjohnston

on 06/07/2018

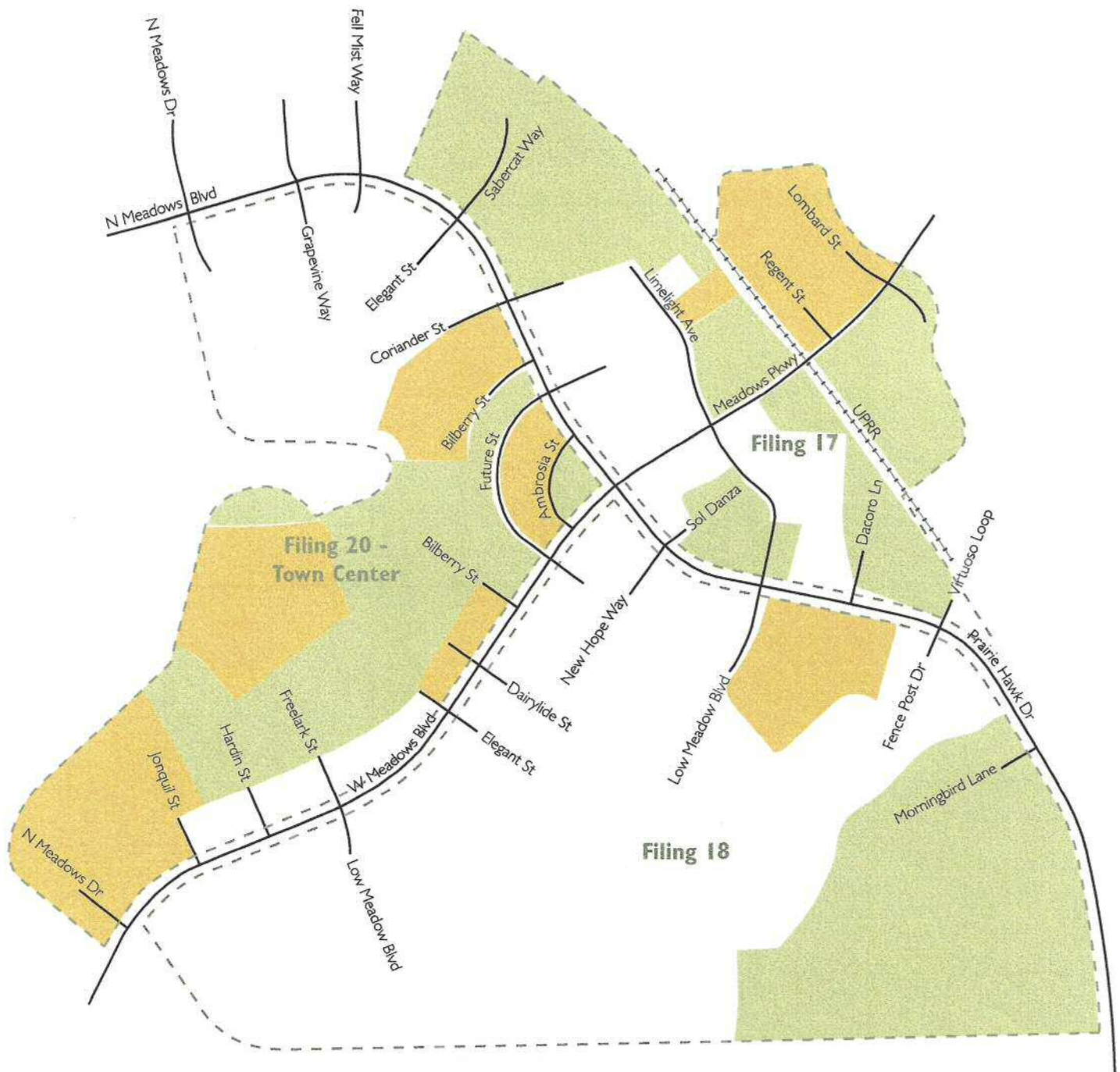


**Approved-MIS17-0005 Meadows Access
Plan.pdf
Record Document on File**



Figure 1
Filings 17, 18, and 20 Boundaries





Legend

- Developing Parcels
- Undeveloped Parcels

Figure 2
Developing and Future land Uses



III.C. Trip Generation Estimates and Trip Comparison

Trip Generation

Vehicle-trip estimates for Filings 17, 18 and 20 were prepared using information contained in *Trip Generation*, 9th Edition (2012), or information developed in previous traffic studies for non-typical land uses like the charter schools (see **Table 1** on pages 7 & 8).

Table 1 also shows the internal capture allowances used for each filing. The internal capture percentage for the Town Center used the *National Cooperative Highway Research Program 684* methodology to estimate the AM and PM peak hour reductions since the Town Center will have a good mix of land use types that allow this procedure to be used. Evaluation results indicate that an internal capture of 3 percent and 11 percent can be expected for the AM and PM peak hours, respectively (see **Appendix A**).

For Filings 17 and 18, the land use mix is not significant enough to use this procedure; that is, Filing 17 lacks a residential component, while Filing 18 lacks retail and office components. Regardless, it is projected that there will be some interaction between the differing land uses within these filings that will result in some internal capture, but not necessarily for each land use.

For example, in Filing 17, some internal capture will occur in the land area where the AMC movie theater is; interaction among restaurants, the theater, bank or convenience store will occur. Residents visiting the movie theater could have dinner at one of the restaurants before or after a movie. Frequenting the bank's ATM could occur before meals or before purchases at the convenience store. Businesses of varying types in this area of Filing 17 are very conducive to completing shared trips to support the internal capture concept.

There will also likely be interaction among the hospital, the MOBs, and the Arapahoe

Community College (ACC) campus along Limestone Avenue. ACC may provide dental or medical programs that could support internships at one of the MOB's or at the hospital, or a hospital employee could take a class at ACC in the evening, for example; trips between land uses that do not require leaving and returning to the immediate area.

But not every parcel in Filing 17 will have an internal capture interaction. It is not expected that the COI parcel on the south side of Meadows Parkway adjacent to Plum Creek will have much interaction among the several office buildings in this land area.

Relative to Filing 18, there will be some internal capture between the residential dwelling units and the Aspen View Charter School. Some families may live within walking distance of the school or, even if they drive their children to school, they may return home and not proceed onto The Meadows arterial street system. Also, some vehicle-trips will have routes to/from the south through the Red Hawk development and to other areas of Castle Rock via Wolfensberger Road, which also do not use The Meadows arterial street system. Each condition contributes to some level of internal capture.

Considering this information, an allocation for internal capture has been used – 10 percent for the interaction between lands uses in Filings 17 and 18 have been applied to the trip generation estimates contained in **Table 1**.

Table 1 also includes information at the end of each filing summary that compares trip generation data for Filings 17, 18 and 20 between what was estimated in 2004 and what is predicted now. A summary of the numerical difference is also included. Following **Table 1** is a brief description of these differences and what is likely causing them.

Table 1. Trip Generation for Filings 17, 18 and 20

Land Use	Unit	Size	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Filing 17									
Retail	KSF	150	6,618	318	344	662	206	262	468
Office	KSF	237	2,748	353	48	401	64	312	376
Light Industrial	KSF	84.4	529	69	9	78	10	72	82
Hospital			4,953	246	78	324	115	272	387
Medical-Dental Office	KSF	110.5	4,088	209	55	264	92	237	329
Hotel	Rooms	130	1,062	71	50	121	40	38	78
ACC Campus	KSF	108	2,969	239	84	323	159	115	274
Mini-Warehouse	KSF	97.3	244	8	6	14	13	13	26
Restaurant	KSF	10	1,271	59	49	108	59	40	99
Car Wash	Bays	4	432	16	16	32	16	16	32
Bank	KSF	3.3	978	46	34	80	80	80	160
Convenience Store	KSF	3	2,537	62	61	123	76	77	153
Movie Theater	KSF	43.4	3,510	0	0	0	188	85	273
Day Care	KSF	18.7	1,385	121	107	228	108	122	230
2017 Subtotal			33,324	1,816	941	2,757	1,227	1,741	2,968
Internal Capture – 10% For Certain Parcel Interaction			-2,430	-120	-72	-192	-101	-115	-216
TOTAL External Trips to/from Filing 17			30,895	1,696	869	2,565	1,126	1,626	2,752
Filing 17 TOTAL - 2004			34,064	1,286	366	1,652	1,332	2,149	3,481
Difference (2017 vs. 2004)			-3,169	+410	+503	+913	-206	-523	-729

Table 1. Trip Generation for Filings 17, 18 and 20 (Continued)

Table 11
Trip Generation Data

Land Use	Unit	Size	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Filing 18									
Single-Family	DU	1,176	11,978	228	683	911	749	440	1,190
Church	KSF	28	255	10	6	16	9	5	15
Charter School	Students	790 ¹	2,200	401	337	736	234	308	542
Assisted Living	Units	219	616	25	14	39	30	33	63
Subtotal			15,050	663	1,040	1,702	1,023	787	1,809
Internal Capture – 10% Between Residential & Charter School			-1,418	-63	-102	-165	-99	-75	-173
TOTAL External Trips to/from Filing 18			13,632	600	938	1,537	924	712	1,636
Filing 18 TOTAL – 2004			17,995	399	903	1,302	1,078	594	1,672
Difference (2017 vs. 2004)			-4,363	+201	+35	+235	-154	+118	-36
Filing 20 – Town Center									
Single-Family	DU	1,018	10,318	195	585	781	645	378	1,023
Townhomes	DU	320	2,084	29	140	169	131	65	196
Apartments	DU	444	2,938	46	180	226	183	97	280
Office	KSF	83	915	114	16	129	21	103	124
Retail	KSF	47.5	2,183	105	113	218	88	112	200
Bank	KSF	5	741	34	26	60	61	61	122
Drug Store	KSF	13	1,250	23	21	45	64	64	128
Charter School	Students	717 ¹	2,005	364	305	668	212	280	492
Subtotal			22,433	910	1,388	2,298	1,405	1,159	2,564
Internal Capture 3% AM; 11% PM			-60	-28	-38	-66	-154	-183	-282
TOTAL Filing 20			22,373	882	1,350	2,232	1,251	1,031	2,282
Filing 20 TOTAL – 2004			22,530	441	1,237	1,678	1,344	923	2,267
Difference (2017 vs. 2004)			-157	+441	+113	+554	-93	+108	+15

¹ Student size represents 95 percent of the maximum population to reflect average daily attendance.

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Trip Generation Comparison

The following information summarizes how the current trip generation estimates compare to what was projected in 2004. Of note, the trip generation summary in the 2004 *Access Plan* included an internal capture allowance for Filing 20 (the Town Center) which was discussed on Page 6 but also included estimates of vehicle-trips between entire filings since one of the objectives of the 2004 *Access Plan* was to understand how many vehicle-trips were entering and leaving the entire Meadows subdivision (different from internal capture within a filing). As such, the comparison of vehicle-trips in **Table 1** is between the 2017 projected vehicle-trips (minus any internal capture) and the estimates from the 2004 *Access Plan* (without any trip reductions for Filings 17 and 18, and for Filing 20 minus the 25 percent internal capture). This approach provides a better apples-to-apples comparison.

- *Filing 17* – Trip generation estimates in 2017 are less on a daily basis. AM peak hour trips are higher, while trips during the PM peak hour are lower. Partial reasoning is that some of the land uses are now known versus assumptions that were made in 2004.
- *Filing 18* – Daily vehicle-trips for Filing 18 are also lower, but slightly higher during the AM peak hour. Inbound and outbound trips in the PM peak hour are mixed, but the PM peak hour total is slightly lower. While the number of residential dwelling units is smaller than in 2004, the Aspen View Charter School has a higher trip generation, being essentially twice the projections for a public elementary school. Charter schools do not have bus service and, therefore, many students arrive by passenger car from anywhere in Castle Rock or outside Town limits.
- *Filing 20 (Town Center)* – Trip generation projections for Filing 20 are slightly lower over the course of an entire day but are higher during the AM peak hour. Reasoning is that a significant internal capture percentage was allowed in 2004 (25 percent), which cannot be justified now due to current ITE methodologies. Additionally, while the number of residential dwelling units is less, the upcoming charter school in this filing has a higher trip generation than a typical public elementary school as also noted for Filing 18.

Vehicle-Trips – Undeveloped Parcels

As noted in Section III.A, certain parcels in Filings 17, 18 and 20 are currently undeveloped and are not contributing vehicle traffic to the surrounding street network at this time. **Table 2** uses information from **Table 1** to estimate the amount of traffic that could be added to the local street network as the undeveloped parcels are constructed.

As shown in **Table 2**, over 34,500 additional vehicle-trips per day are projected to be added to the surrounding arterial street network as Filings 17, 18 and 20 develop. These new trips are part of the expected number of vehicle-trips for the entire build-out of these filings.

Additionally, no internal capture is included in **Table 2**. If it is the Town's desire to compare projected vehicle-trips in Filings 17, 18 and 20 to the information contained in this table, individual traffic studies likely will not address internal capture for a larger area outside their immediate parcel. As such, a better apples-to-apples comparison will occur if internal capture allowances are not included in these comparisons.

Table 2. Trip Generation for Undeveloped Parcels

Table 2

Land Use	Unit	Size	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Filing 17									
Retail	KSF	108	4,712	226	245	471	142	181	322
Office	KSF	205	2,397	309	42	351	56	272	328
Light Industrial	KSF	84.4	529	69	9	78	10	72	82
Medical-Dental Office	KSF	100	3,874	189	50	239	82	210	291
Hotel	Rooms	130	1,062	71	50	121	40	38	78
ACC Campus	KSF	108	2,969	239	84	323	159	115	274
Restaurant	KSF	10	1,271	59	49	108	59	40	99
Car Wash	Bays	4	432	16	16	32	16	16	32
Bank	KSF	3.3	489	23	17	40	40	40	80
Convenience Store	KSF	3	2,537	62	61	123	76	77	153
Filing 17 Totals			20,272	1,263	623	1,886	679	975	1,590
Filing 18									
Single-Family	DU	209	2,069	39	117	156	129	75	204
Filing 18 Totals			2,069	39	117	156	129	75	204
Filing 20									
Single-Family	DU	376	4,462	86	257	343	280	164	444
Multi-Family	DU	310	1,997	27	134	161	125	62	187
Apartments	DU	204	1,380	21	83	104	85	45	130
Office	SF	72	794	99	13	112	18	89	107
Retail	SF	37	1,674	80	87	167	67	85	152
Bank	SF	5	741	34	26	60	61	61	122
Drug Store	SF	13	1,250	23	21	45	64	64	128
Filing 20 Totals			12,279	371	621	992	701	569	1,270
TOTAL New Trips for Undeveloped Parcels			34,620	1,673	1,361	3,034	1,509	1,619	3,064

Referring to **Table 1**, current daily vehicle-trip projections are less than what was approved for these filings in 2004 since there is now a better understanding of expected land use types and densities. As such, any trip generation comparisons that are made should reflect the approved densities, a level of vehicle-trips that is higher than an additional 34,620 vehicles per day (vpd).