

Paint Brush Hills Filing 14
Traffic Impact Analysis
(LSC #184630)
July 16, 2018

¹ Add PCD File No SP206 and
SF2024

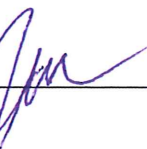
Traffic Engineer's Statement

The traffic report and supporting information were prepared under my responsible charge and they conform with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.




7/16/18
Date


LSC Responses to EPC TIS Redline comments

Paint Brush Hills Fil 14

Page: 1

 Number: 1 Author: dsdlaforce Subject: Text Box Date: 11/2/2020 14:08:02

[Add PCD File No SP206 and SF2024](#)

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 11:00:24
The information has been added as requested


Include PBH Filing 13E
submitted in 2018

- **Falcon Hills Traffic Impact Study** - April 8, 2004: This study included analysis of all of the vacant areas west of Meridian Road and north of Stapleton Drive. Since completion of that report, Falcon Middle School has been completed on the parcel shown as “Falcon High School” in the 2004 report. An elementary school will be constructed in this area; however, it will be placed just north of Falcon Middle School rather than northwest of the north Londonderry Drive/Towner intersection. The key tables and figures from that report have been attached for reference.
- **Paint Brush Hills Filing 13A** - May 14, 2014: The 17 single-family homes in Filing 13A located south of Londonderry Drive and east of Towner Avenue have all been constructed since completion of this report.
- **Paint Brush Hills Filing 13B** - March 26, 2014: This report assumed lots for 21 single-family homes to be located north of Londonderry Drive and west of Towner Avenue. This is the same number of units as assumed for this area in the 2004 overall study. Some of the lots in this filing are currently under construction but none are currently occupied.
- **Scenic View at Paint Brush Hills** - April 7, 2014: This report assumed lots for 90 single-family homes northeast of the intersection of Stapleton Drive and Towner Avenue. Since completion of that report all of the homes have been built in the Scenic View development.
- **Paint Brush Hills Filings 13C-13F** - September 25, 2014: This report was superseded by the Paint Brush Hills Filings 13C and 13 D report described below.
- **Paint Brush Hills Filings 13C and 13D** - January 9, 2017: This report assumed lots for 232 single-family homes west of Towner Avenue between the north and south portions of Londonderry Drive. Some of the lots within these filings are currently under construction but none are currently occupied.
- **D-49 Elementary School** - May 30, 2017: This report analyzed an elementary school to be located southeast of the north intersection of Londonderry Drive and Towner Avenue. At buildout the school will support up to 900 students.


Table 1 contains a summary of the land uses assumed for the areas west of Meridian Road and north of Stapleton Drive in the 2004 report and the latest traffic impact study completed by LSC in the area (D-49 Elementary School). Figure 2 shows the site plan and traffic analysis zones (TAZ) assumed in the 2004 study.

LAND USE AND ACCESS

Figure 3 shows the currently existing, approved, and currently proposed developments in the areas west of Meridian Road and north of Stapleton Drive. The currently proposed Paint Brush Hills Filing 14 is located in the northwest corner of the development. There are existing single-

 Number: 1 Author: dsdlaforce Subject: Callout Date: 11/2/2020 14:06:29

[Include PBH Filing 13E submitted in 2018](#)

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 12:10:16
The information has been added as requested

- **Stapleton Drive** is classified as a four-lane Urban Principal Arterial on the El Paso County MTCP. However, Stapleton Drive in the vicinity of the site is a two-lane roadway. Stapleton Drive extends east from just west of Towner Drive across US Highway 24 to Curtis Road. Longer-term plans show Stapleton extended west to connect with Briargate.
- **Towner Avenue** is a 40-foot-wide Urban Residential Collector street (within Paint Brush Hills) that extends south from Londonderry Drive to just south of Woodmen Hills Drive. The posted speed limit of 35 miles per hour.

TRIP GENERATION

The site-generated vehicle-trips were estimated using the nationally published trip generation rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 2 shows the trip generation estimates for the site.

Filing 14 is expected to generate about 2,115 vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 41 vehicles would enter and 124 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 140 vehicles would enter and 82 vehicles would exit the site.

BACKGROUND TRAFFIC


Provide existing traffic counts per ECM
Appendix B Section B.3.1.

Background traffic is the traffic estimated to be on the area streets and roadways without consideration of the proposed development. Figure 5 shows the projected background traffic volumes for the short term (2023). These background traffic volumes were based on estimates of traffic projected to be generated (or currently generated) by Paint Brush Hills Filing 4 through Filing 13D, Scenic View at Paint Brush Hills, Falcon Middle School, and the recently approved D49 elementary school. The traffic volumes for the developments not yet built out were taken from their respective traffic studies completed by LSC. The short-term scenario assumes Stapleton Drive not yet extended west from its current terminus.


Figure 6 shows the projected 2040 background traffic volumes. These volumes assume buildout of the Paint Brush Hills development. The 2040 background traffic volumes also assume Stapleton Drive has been extended west.

DIRECTIONAL DISTRIBUTION

The directional distribution of the site-generated traffic volumes on the area roadways is an important factor in determining the site's traffic impacts. Figure 6 shows the short-term and long-term external directional distribution estimates for the site-generated traffic volumes. The estimates have been based on the following factors: the site's location with respect to the nearby employment, commercial, schools, and activity centers and the balance of the Falcon and Colorado Springs metropolitan area; the site's proposed land use; the site's proposed access

 Number: 1 Author: dsdlaforce Subject: Callout Date: 11/2/2020 14:24:22

[Provide existing traffic counts per ECM Appendix B Section B.3.1.](#)

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 12:10:34
Traffic counts have been provided as requested

 Number: 2 Author: dsdlaforce Subject: Highlight Date: 11/2/2020 14:24:33

buildout. Although the ECM does not have a provision for waiving the need for a right-turn deceleration lane when the through traffic is below a certain level, the State of Colorado Highway Access code provides a waiver to right-turn lane requirements when the 20th year predicted volume in the travel lane is below 150 vehicles per hour. As the southbound traffic volume is projected to be only 87 vehicles per hour, LSC recommends that the requirement for a right-turn deceleration lane be waived. The County may require the submittal of a deviation request form.

Proposed Subdivision Street Classifications

- As shown in Figure 11 all proposed subdivision streets will be classified as Urban Local Low Volume or Urban Local streets.

County Road Impact Fee

- The applicant will be required to participate in the County Road Impact Fee Program. Assuming this development joins the ten-mil PID, the building permit fee portion is \$923 per single-family dwelling unit. The net fee for the proposed 224 lots in Filing 14 would be \$206,752.

* * *

Please contact me if you have any questions or

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E., PTOE
Principal

JCH:KDF:bjwb

Enclosures: Tables 1-2
Figures 1-11
Key tables and figures from Falcon
Level of Service Reports


If the TIS is recommending not meeting the ECM then an approved deviation request is required. Revise last sentence to state a deviation request is submitted with this application for consideration.

For the two proposed auxiliary turn lanes at Rockingham and Londonderry list the criteria for stacking, storage, and taper and state whether this can be met. If it can't then state the required modification so they can be met.


Provide sight distance analysis and provide recommendations if they can't be met. See the preliminary plan redline comments. Staff has identified intersections that doesn't meet intersection sight distance.

Provide evaluation of continuity and adequacy of pedestrian, bicycle and school routing. See ECM Appendix B Section B.4.1.C

Provide pedestrian/school routing plans and impact analysis. See ECM Appendix B Section B.4.1.C


 Number: 1 Author: dsdlaforce Subject: Callout Date: 11/3/2020 07:31:46


If the TIS is recommending not meeting the ECM then an approved deviation request is required. Revise last sentence to state a deviation request is submitted with this application for consideration.

 Author: kdferrin Subject: Sticky Note Date: 1/13/2021 17:07:41
Revised as requested. A deviation is included with this submittal.


 Number: 2 Author: dsdlaforce Subject: Text Box Date: 11/3/2020 07:34:21


For the two proposed auxiliary turn lanes at Rockingham and Londonderry list the criteria for stacking, storage, and taper and state whether this can be met. If it can't then state the required modification so they can be met.

 Author: jchodsdon Subject: Sticky Note Date: 1/13/2021 17:11:12
The report has been updated to address this comment and a deviation is included with this submittal.


 Number: 3 Author: dsdlaforce Subject: Text Box Date: 11/3/2020 07:45:35


Provide sight distance analysis and provide recommendations if they can't be met. See the preliminary plan redline comments. Staff has identified intersections that doesn't meet intersection sight distance.

 Author: kdferrin Subject: Sticky Note Date: 1/13/2021 17:09:53
The requested information has been added to the updated report. The deviation for intersection spacing also includes sight distance analysis and findings.

 Number: 4 Author: dsdlaforce Subject: Text Box Date: 11/3/2020 07:31:29

Provide evaluation of continuity and adequacy of pedestrian, bicycle and school routing. See ECM Appendix B Section B.4.1.C

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:03:56
The requested information has been added to the updated report

 Number: 5 Author: dsdlaforce Subject: Text Box Date: 11/3/2020 07:29:03

Provide pedestrian/school routing plans and impact analysis. See ECM Appendix B Section B.4.1.C


 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:04:00
The requested information has been added to the updated report


Table 1
Paintbrush Hills
Land Use Comparison


Falcon Hills Traffic Impact Analysis April 8, 2004 Scenario 2				D-49 Elementary School Traffic Impact Analysis May 30, 2017				Existing, Approved, Currently Proposed or Future				Change				
Traffic Analysis Zone	Land Use	Quantity	Unit	Filing Name	Land Use	Quantity	Unit	Filing Name	Status	Land Use	Quantity	Unit	From 2004 Quantity	Unit	From 2017 Quantity	Unit
1	Single-Family Detached Housing	194	DU ⁽¹⁾	Paintbrush Hills Fil 4	Single-Family Detached Housing	164	DU	Paintbrush Hills Fil 4	Built Out	Single-Family Detached Housing	164	DU	1	DU	0	DU
				Paintbrush Hills Fil 5	Single-Family Detached Housing	31	DU	Paintbrush Hills Fil 5	Built Out	Single-Family Detached Housing	31	DU		DU	0	DU
	Single-Family Detached Housing		DU	Paintbrush Hills Fil 6	Single-Family Detached Housing	48	DU	Paintbrush Hills Fil 6	Built Out	Single-Family Detached Housing	48	DU		DU	0	DU
2	Single-Family Detached Housing	303	DU	Paintbrush Hills Fil 7	Single-Family Detached Housing	57	DU	Paintbrush Hills Fil 7	Built Out	Single-Family Detached Housing	57	DU	-2	DU	0	DU
	Single-Family Detached Housing		DU	Paintbrush Hills Fil 8	Single-Family Detached Housing	108	DU	Paintbrush Hills Fil 8	Built Out	Single-Family Detached Housing	108	DU		DU	0	DU
	Single-Family Detached Housing		DU	Paintbrush Hills Fil 9	Single-Family Detached Housing	88	DU	Paintbrush Hills Fil 9	Built Out	Single-Family Detached Housing	88	DU		DU	0	DU
3	High School	706	Students	Falcon Middle School	Middle School	900	Students	Falcon Middle School	Built Out	Middle School	900	Students	---		---	
4	Single-Family Detached Housing	41	DU	Paintbrush Hills Fil 10 (East)	Single-Family Detached Housing	41	DU	Paintbrush Hills Fil 10 (East)	Built Out	Single-Family Detached Housing	41	DU	0	DU	0	DU
			DU	Paintbrush Hills Fil 10 (West)	Single-Family Detached Housing	49	DU	Paintbrush Hills Fil 10 (West)	Built Out	Single-Family Detached Housing	49	DU		DU	0	DU
5	Single-Family Detached Housing	181	DU	Paintbrush Hills Fil 11	Single-Family Detached Housing	81	DU	Paintbrush Hills Fil 11	Built Out	Single-Family Detached Housing	81	DU	-5	DU	0	DU
			DU	Paintbrush Hills Fil 12	Single-Family Detached Housing	46	DU	Paintbrush Hills Fil 12	Built Out	Single-Family Detached Housing	46	DU		DU	0	DU
6	Apartments	180	DU	Scenic View at Paintbrush Hills	Single-Family Detached Housing	89	DU	Scenic View at Paintbrush Hills	Built Out	Single-Family Detached Housing	89	DU	-91	DU	0	DU
7	Single-Family Detached Housing	13	DU	---	---	---	---	---	---	---	---	-13	DU	0	DU	
8	Shopping Center (8.2 acres)	82	KSF ⁽²⁾	D-49 Elementary School	Elementary School	900	Students	D-49 Elementary School	Approved	Elementary School	900	Students	---		---	
				Future	Church with Day Care	6	Acres	Future	Church with Day Care	Church with Day Care	6	Acres	---		---	
	Single-Family Detached Housing	33	DU	Paintbrush Hills Fil 13A	Single-Family Detached Housing	17	DU	Paintbrush Hills Fil 13A	Built Out	Single-Family Detached Housing	17	DU	-16	DU	0	DU
9	Single-Family Detached Housing	133	DU	Paintbrush Hills Fil 13B	Single-Family Detached Housing	21	DU	Paintbrush Hills Fil 13B	Under Construction	Single-Family Detached Housing	21	DU	23	DU	0	DU
			DU	Paintbrush Hills Fil 13C	Single-Family Detached Housing	135	DU	Paintbrush Hills Fil 13C	Under Construction	Single-Family Detached Housing	135	DU		DU	0	DU
10	Single-Family Detached Housing	102	DU	Paintbrush Hills Fil 13D	Single-Family Detached Housing	97	DU	Paintbrush Hills Fil 13D	Under Construction	Single-Family Detached Housing	97	DU	-5	DU	0	DU
			DU	Paintbrush Hills Future Filing West	Single-Family Detached Housing	181	DU	Paintbrush Hills Fil 14	Proposed	Single-Family Detached Housing	224	DU	113	DU	99	DU
11	Single-Family Detached Housing	167	DU	Paintbrush Hills Future Filing West	Single-Family Detached Housing	181	DU	Paintbrush Hills Future Filing West	1	Single-Family Detached Housing	56	DU		DU		DU
12	Single-Family Detached Housing	93	DU	Paintbrush Hills Future Filing East	Single-Family Detached Housing	102	DU	Paintbrush Hills Future Filing East	2	Single-Family Detached Housing	102	DU	9	DU	0	DU
	Elementary School	500	Students										---		---	
Total																
	Single-Family Detached Housing	1,260	DU		Single-Family Detached Housing	1,355	DU			Single-Family Detached Housing	1,454	DU	194	DU	99	DU
	Apartments	180	DU		Apartments	0	DU			Apartments	0	DU	-180	DU	0	DU
	Total Residential	1,440	DU		Total Residential	1,355	DU			Total Residential	1,454	DU	14	DU	99	DU
	Shopping Center	82	KSF		Shopping Center	0	KSF			Shopping Center	0	KSF	-47	KSF	0	KSF
	Church With Day Care	0	KSF		Church With Day Care	35	KSF			Church With Day Care	35	KSF	594	Students	0	Students
	School	1,206	Students		School	1,800	Students			School	1,800	Students				


Notes:
(1) DU = dwelling unit
(2) KSF = thousand square feet of floor area


Source: LSC Transportation Consultants, Inc.


Update Zone 12 and Zone 11. This has been recorded as Filing 13E

 Number: 1 Author: dsdlaforce Subject: Highlight Date: 11/2/2020 14:32:08
Future


 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:04:24
The table has been updated as requested

 Number: 2 Author: dsdlaforce Subject: Highlight Date: 11/2/2020 14:32:09
Future

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:04:21
The table has been updated as requested

 Number: 3 Author: dsdlaforce Subject: Callout Date: 11/2/2020 14:31:13

[Update Zone 12 and Zone 11. This has been recorded as Filing 13E](#)

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:04:11
The table has been updated as requested

1 Update Zone 12 and Zone 11. This has been recorded as Filing 13E

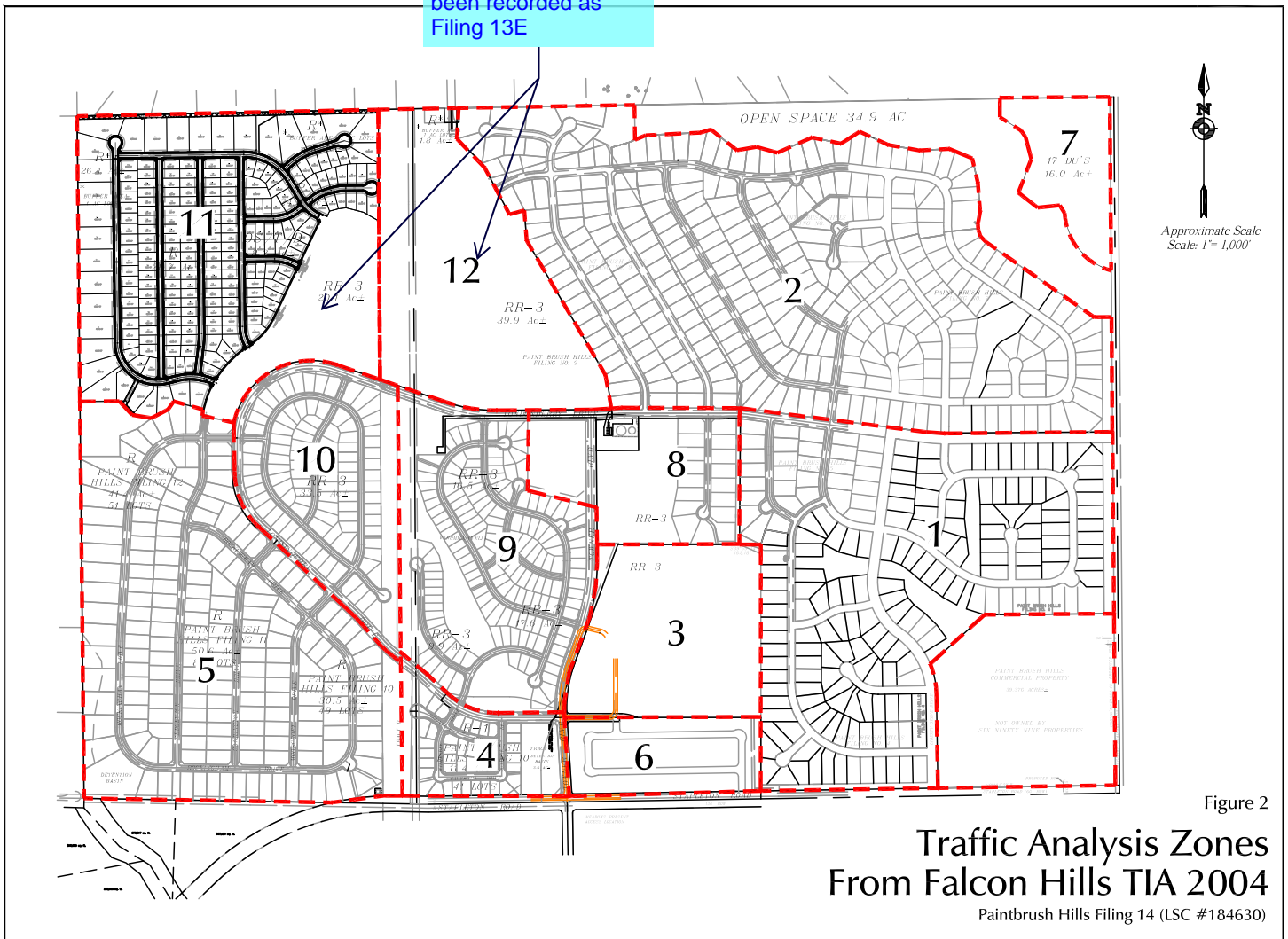




Figure 2

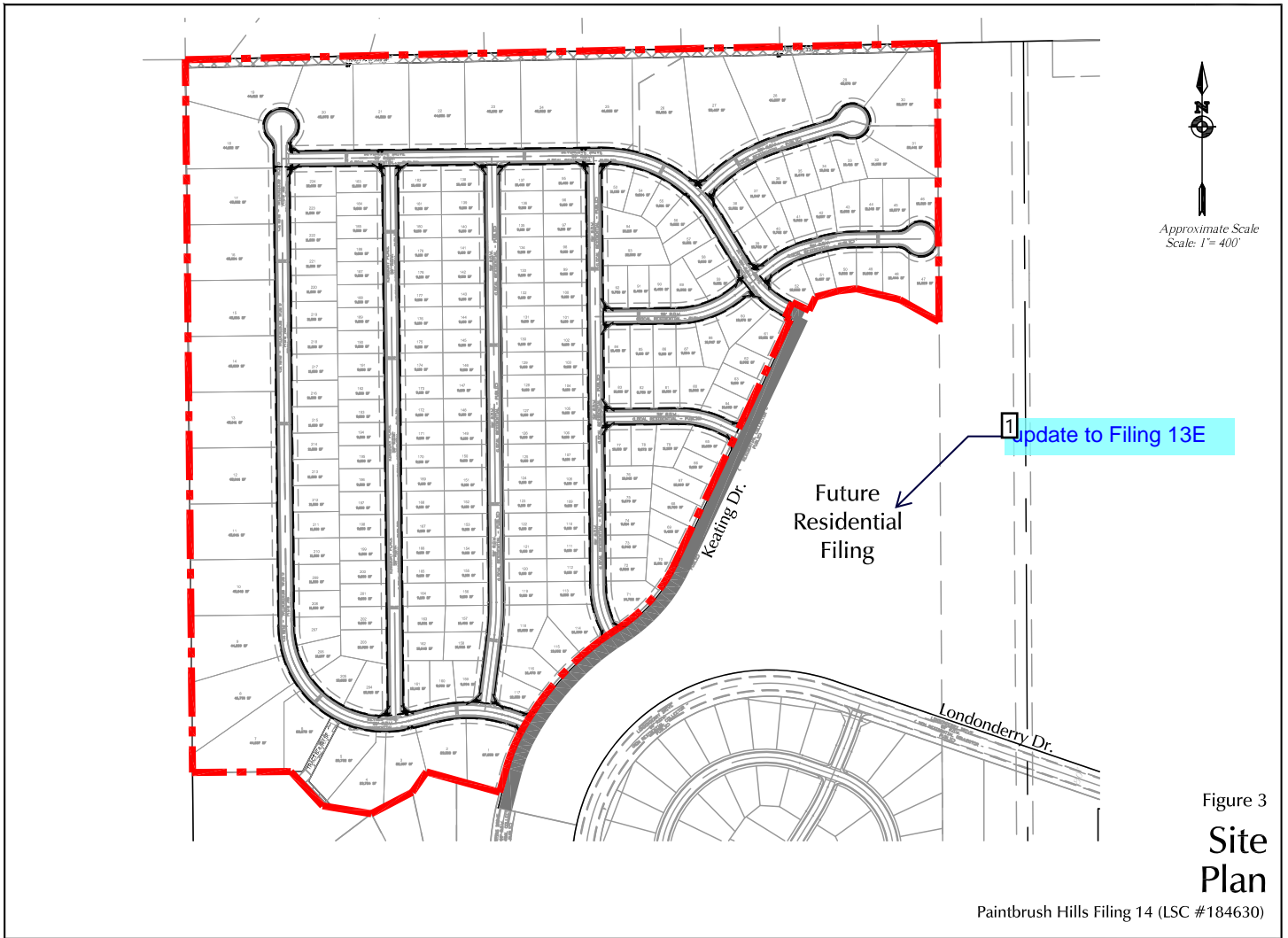
Traffic Analysis Zones From Falcon Hills TIA 2004


Paintbrush Hills Filing 14 (LSC #184630)

 Number: 1 Author: dsdlaforce Subject: Callout Date: 11/2/2020 14:29:04


[Update Zone 12 and Zone 11. This has been recorded as Filing 13E](#)

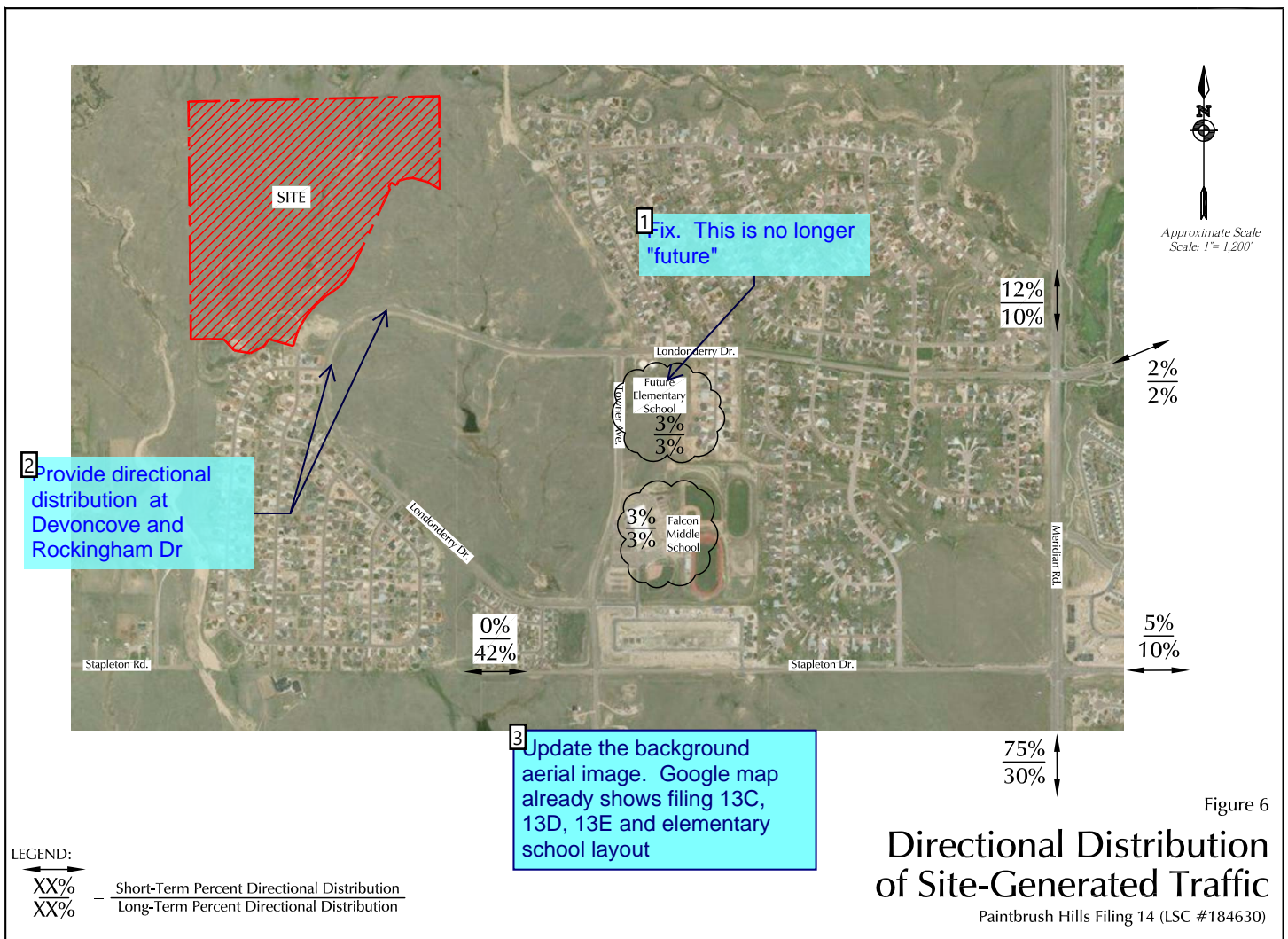
 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:04:33
The figure has been updated as requested




 Number: 1 Author: dsdlaforce Subject: Callout Date: 11/2/2020 14:32:39


[update to Filing 13E](#)

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:05:24
The figure has been updated as requested




 Number: 1 Author: dsdlaforce Subject: Callout Date: 11/2/2020 14:38:53


[Fix. This is no longer "future"](#)

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:06:29


The figure has been updated to identify the Bennet Ranch Elementary School location

 Number: 2 Author: dsdlaforce Subject: Callout Date: 11/2/2020 14:39:46


[Provide directional distribution at Devoncove and Rockingham Dr](#)

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:05:39

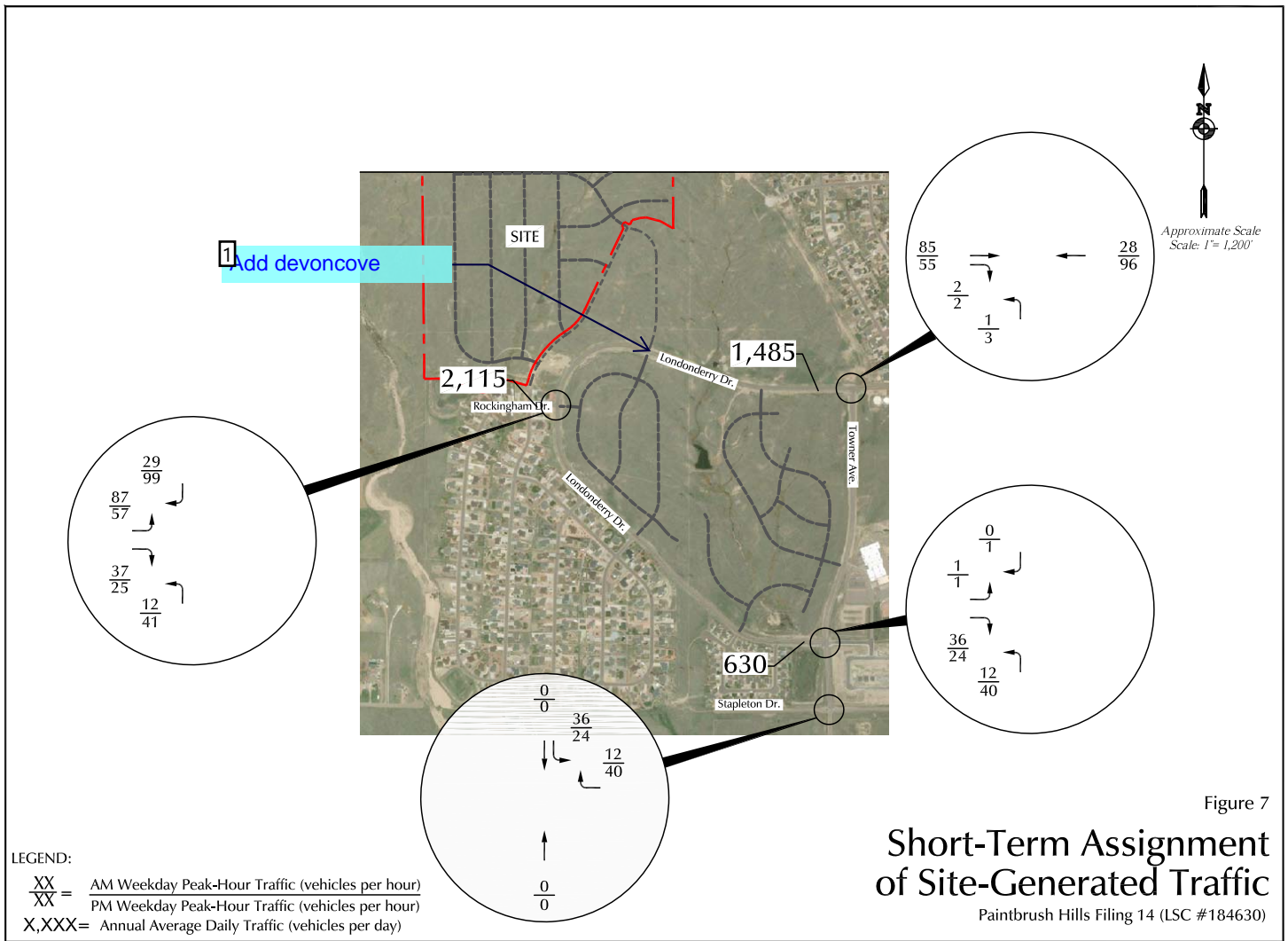
The requested information has been added to the figure


 Number: 3 Author: dsdlaforce Subject: Text Box Date: 11/2/2020 14:38:32

[Update the background aerial image. Google map already shows filing 13C, 13D, 13E and elementary school layout](#)


 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:05:50

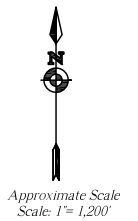
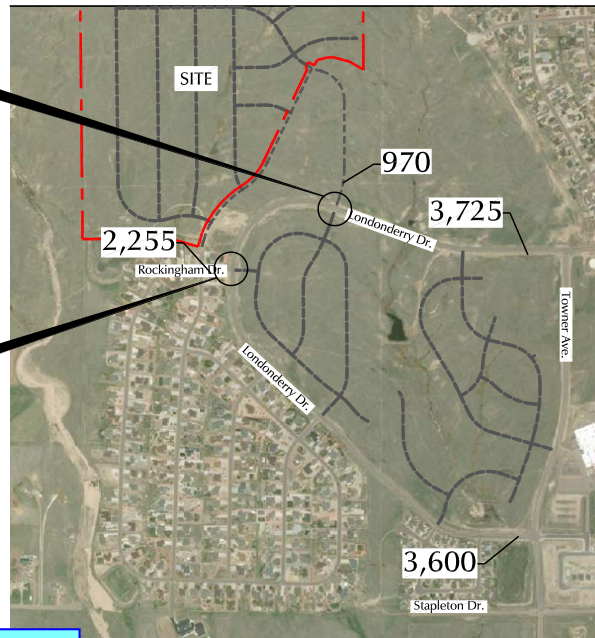
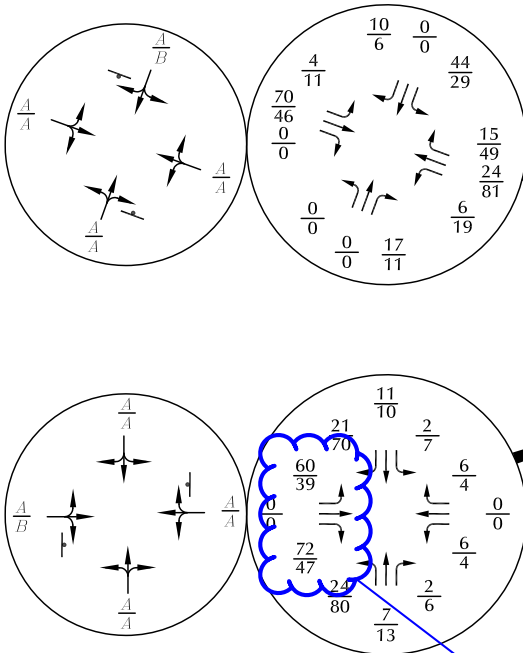
The image has been updated as requested



 Number: 1 Author: dsdlaforce Subject: Callout Date: 11/2/2020 14:40:22

[Add devoncove](#)

 Author: kdferrin Subject: Sticky Note Date: 12/29/2020 14:06:35
Added as requested



LEGEND:


- = Stop Sign
- $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
- $\frac{A}{A}$ = AM Individual Movement Peak-Hour Level of Service
- $\frac{B}{B}$ = PM Individual Movement Peak-Hour Level of Service
- X,XXX = Annual Average Daily Traffic (vehicles per day)

1 Discuss in the conclusion/recommendation section. This appears to meet ECM criteria for exclusive turn lanes. Provide your recommendation.


2040 Total Traffic, Lane Geometry, Traffic Control and Level of Service

Paintbrush Hills Filing 14 (LSC #184630)

Figure 10

 Number: 1 Author: dsdlaforce Subject: Cloud+ Date: 11/3/2020 10:25:11

Discuss in the conclusion/recommendation section. This appears to meet ECM criteria for exclusive turn lanes. Provide your recommendation.

 Author: jchodsdon Subject: Sticky Note Date: 1/13/2021 17:14:00

The report has been updated to address this comment and discussion of the eastbound approach laneage is included in the auxiliary turn lane deviation for this intersection. This deviation is included with this submittal.