

March 17, 2022

Mr. Jim Byers  
VP of Community Development  
Challenger Homes  
8605 Explorer Drive, Suite 250  
Colorado Springs, CO 80920

**RE: Falcon Highlands Filing No. 3 Traffic Noise Letter**

Dear Mr. Byers:

This letter serves as a summary of the traffic noise model results for the Falcon Highlands Filing No. 3 development. The model analyzed the noise generated by US 24 and received by the proposed houses closest to US 24 to ensure that the limit of 66 decibels (dB) was not exceeded.

**Area Conditions and Proposed Development**

The Falcon Highlands Filing No. 3 development, herein referred to as “the site”, is a proposed development located in El Paso County, Colorado. The site includes 380 proposed single-family detached houses. The site is bounded by the existing Falcon Highlands Filing No. 2 to the north, Tamlin Road to the east and south, and undeveloped land to the west. See Figure 1 for a vicinity map.

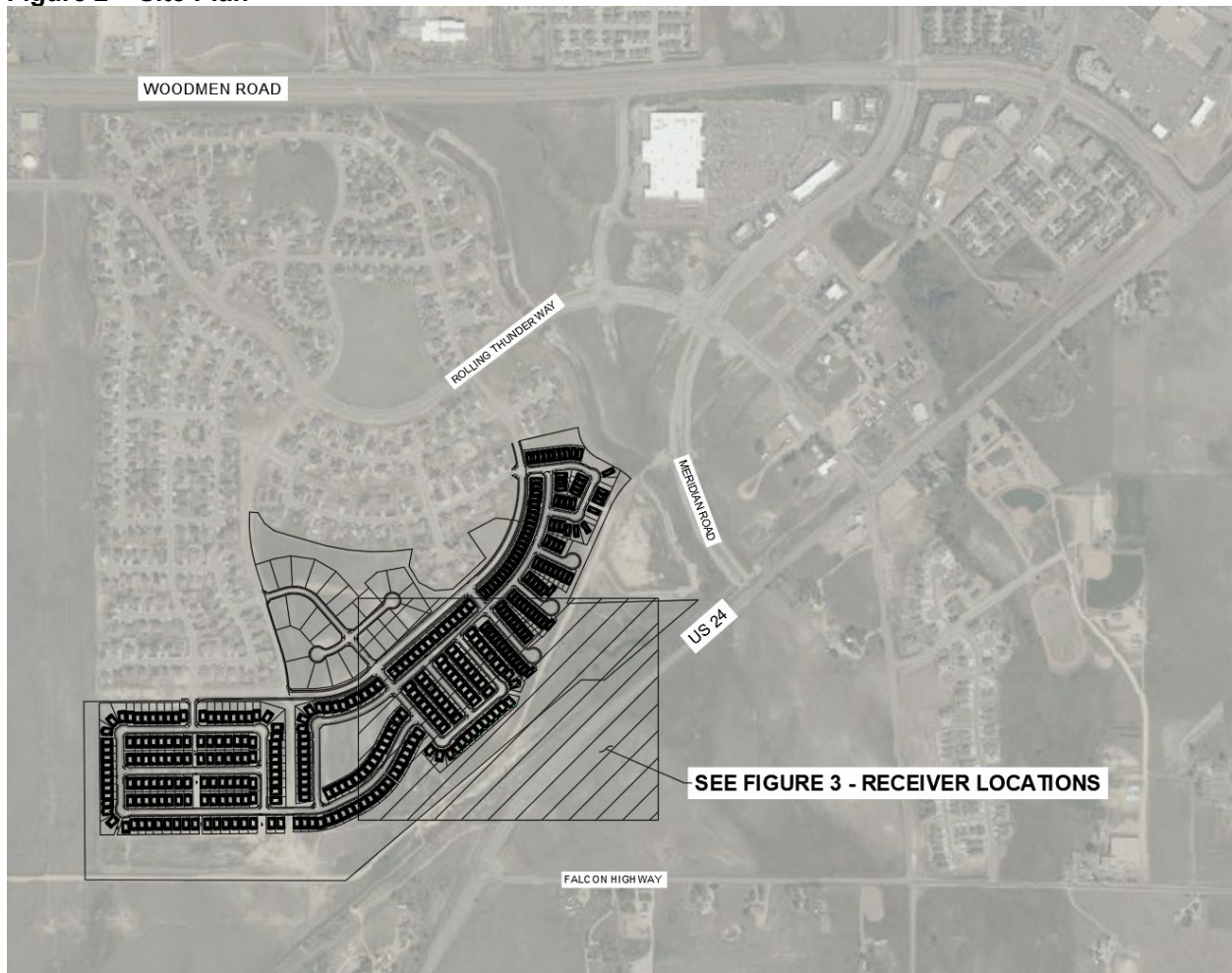
**Figure 1 – Vicinity Map**



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The proposed site plan is shown in Figure 2.

**Figure 2 – Site Plan**



## Noise Generation

The model analyzed the noise generated from traffic along US 24, which is to the southeast of the site. The traffic volume used in the model is based on the volumes collected by All Traffic Data on May 20, 2021 on US 24 west of Meridian Road. Refer to Appendix A for the traffic volumes. The volumes of automobiles, medium trucks, and heavy trucks were calculated using traffic counts taken by All Traffic Data on June 2, 2021 at the intersection of US 24 and Meridian Road. All Traffic Data differentiated traffic counts by automobiles (lights), medium trucks (mediums), and heavy trucks (articulated trucks), so a ratio was used to determine the traffic volumes for each vehicle type to input into the model. Refer to Appendix B for the traffic counts. See Table 1 for the ratios of vehicle types on US 24, expressed as a percentage of the total traffic.

**Table 1 – Vehicle Type Percentage of Traffic Volume**

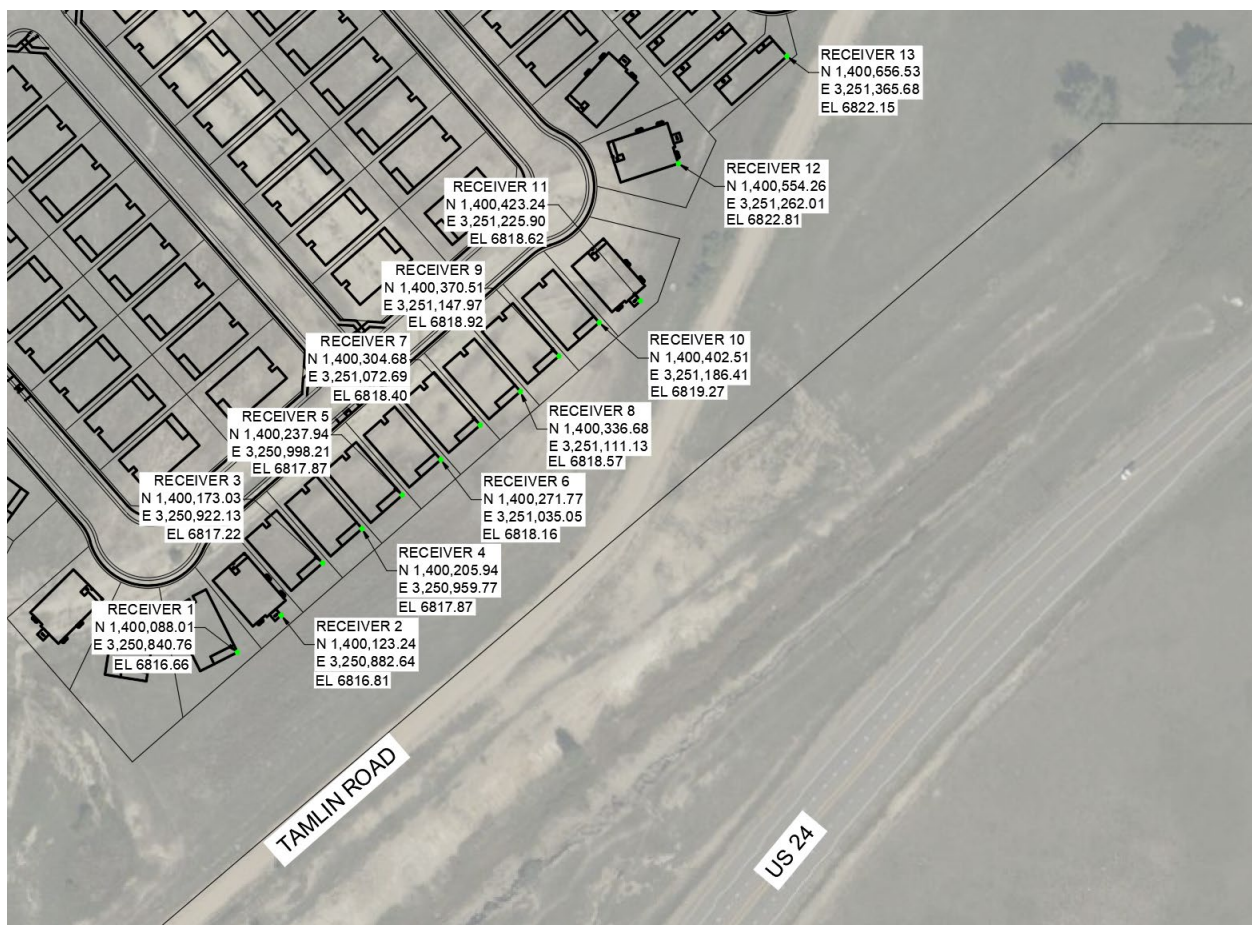
Direction	Auto	Medium Truck	Heavy Truck
US 24 EB	96.1%	2.4%	1.5%
US 24 WB	96.9%	1.2%	1.9%

Refer to Appendix C for the traffic volumes used in the model.

### Noise Receivers

Receivers were placed within the model at the 13 houses closest to US 24. Refer to Figure 3 for the locations of the receivers.

**Figure 3 – Receiver Locations**



The model anticipates that the maximum noise level reached is 51.7 dB at receiver 6. See Table 2 for the noise levels modeled at each receiver. Refer to Appendix D for the receivers model output.

**Table 2 – Receiver Noise Levels**

Receiver Name	Modeled Traffic Noise Levels
	Calculated LAeq (dBA)
Receiver-1	48.5
Receiver-2	48.6
Receiver-3	48.7
Receiver-4	46.4
Receiver-5	46.7
Receiver-6	51.7
Receiver-7	47.1
Receiver-8	47.3
Receiver-9	47.4
Receiver-10	47.6
Receiver-11	47.9
Receiver-12	46.4
Receiver-13	46.3

**Noise Criteria**

According to the Colorado Department of Transportation (CDOT) Noise Analysis and Abatement Guidelines, CDOT uses a maximum noise level of 1 dB less than those listed in Table 1 of 23 CFR 772, which is 67 dB for residential areas. Therefore, the maximum noise level is 66 dB.

**Conclusions**

The maximum noise reached any receiver is 51.7 dB. This is below the 66-dB threshold set by CDOT. Therefore, no noise abatement is needed for this project.

If you have any questions, please feel free to contact me at [Scott.Barnhart@matrixdesigngroup.com](mailto:Scott.Barnhart@matrixdesigngroup.com) or at (719) 575-0100.

Sincerely,



Scott D. Barnhart, P.E., PTOE  
Senior Associate of Transportation Services.

## **Appendix A – US 24 Traffic Volume**

Date Start: 20-May-21  
Site Code: 10  
Station ID: 10  
US 24 W.O. MERIDIAN RD

Start Time	20-May-21 Thu	EB	WB								Total
12:00 AM		58	36								94
01:00		34	24								58
02:00		24	24								48
03:00		31	43								74
04:00		57	108								165
05:00		122	429								551
06:00		376	842								1218
07:00		500	977								1477
08:00		573	693								1266
09:00		470	629								1099
10:00		490	506								996
11:00		520	592								1112
12:00 PM		506	537								1043
01:00		573	500								1073
02:00		643	488								1131
03:00		606	495								1101
04:00		573	676								1249
05:00		595	566								1161
06:00		655	699								1354
07:00		473	408								881
08:00		354	265								619
09:00		218	160								378
10:00		154	97								251
11:00		112	55								167
Total		8717	9849								18566
Percent		47.0%	53.0%								
AM Peak	-	08:00	07:00	-	-	-	-	-	-	-	07:00
Vol.	-	573	977	-	-	-	-	-	-	-	1477
PM Peak	-	18:00	18:00	-	-	-	-	-	-	-	18:00
Vol.	-	655	699	-	-	-	-	-	-	-	1354
Grand Total		8717	9849								18566
Percent		47.0%	53.0%								
ADT		ADT 18,566	AADT 18,566								

## **Appendix B – US 24 & Meridian Road Traffic Counts**

All Traffic Data Services

1 MERIDIAN RD & US 24 AM  
Wednesday, June 2, 2021

Peak Hour  
07:00 AM - 08:00 AM  
Peak 15-Minutes  
07:30 AM - 07:45 AM

Traffic Counts - All Vehicles

Time	US 24					US 24					MERIDIAN RD					MERIDIAN RD					Total	Rolling Hour	
	Eastbound					Westbound					Northbound					Southbound							
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR			
7:00 AM	0	15	87	0	0	0	0	6	193	0	0	0	1	30	5	0	0	0	18	77	0	432	1,823
7:15 AM	0	13	93	0	0	0	0	7	180	1	0	0	0	42	12	0	1	0	19	86	0	454	1,764
7:30 AM	0	16	101	0	0	0	0	9	213	0	0	0	2	28	15	0	0	0	20	73	0	477	1,691
7:45 AM	0	23	101	0	0	0	0	6	158	0	0	0	1	50	20	0	0	0	31	70	0	460	1,583
8:00 AM	0	14	93	0	0	0	0	4	144	0	0	0	3	26	11	0	0	0	22	56	0	373	1,481
8:15 AM	0	21	95	1	0	0	0	3	155	0	0	0	1	32	11	0	0	0	14	48	0	381	0
8:30 AM	0	20	111	0	0	0	0	12	126	0	0	0	0	23	13	0	0	0	25	39	0	369	0
8:45 AM	0	22	126	4	0	0	0	8	126	0	0	0	1	16	10	0	0	0	6	39	0	358	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks	0	1	10	0	0	0	0	13	0	0	0	0	1	0	0	0	0	0	0	0	25
Lights	0	65	351	0	0	0	28	722	1	0	0	4	145	51	0	1	0	85	306	0	1,759
Mediums	0	1	21	0	0	0	0	9	0	0	0	0	4	1	0	0	0	3	0	0	39
Total	0	67	382	0	0	0	28	744	1	0	0	4	150	52	0	1	0	88	306	0	1,823
Bicycles on Crosswalk			0					0					0					0			0
Heavy Vehicle Percentage			7.3%					2.8%					2.9%					0.8%			3.5%
Heavy Vehicle Percentage	0.0%	3.0%	8.1%	0.0%	0.0%	0.0%	0.0%	3.0%	0.0%	0.0%	0.0%	0.0%	3.3%	1.9%	0.0%	0.0%	0.0%	3.4%	0.0%	0.0%	3.5%
Peak Hour Factor (PHF)			0.83					0.87					0.74					0.93			0.96
Peak Hour Factor (PHF)	0.00	0.85	0.84	0.31	0.00	0.00	0.78	0.87	0.25	0.00	0.00	0.58	0.75	0.73	0.00	0.25	0.00	0.74	0.89	0.00	0.96

## All Traffic Data Services

1 MERIDIAN RD & US 24 PM  
Wednesday, June 2, 2021

Peak Hour

05:00 PM - 06:00 PM

Peak 15-Minutes

05:00 PM - 05:15 PM

### Traffic Counts - All Vehicles

Time	US 24					US 24					MERIDIAN RD					MERIDIAN RD					Total	Rolling Hour
	Eastbound					Westbound					Northbound					Southbound						
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR		
4:00 PM	0	45	177	0	0	0	6	133	0	0	0	1	56	19	0	0	3	27	41	0	508	2,097
4:15 PM	0	62	200	0	0	0	20	129	1	0	0	0	40	18	0	0	0	30	24	0	524	2,174
4:30 PM	0	50	178	0	0	0	23	109	1	0	0	1	69	14	0	0	2	47	24	0	518	2,217
4:45 PM	0	56	177	1	0	0	28	116	0	0	0	1	64	19	0	0	1	53	31	0	547	2,259
5:00 PM	0	81	207	1	0	0	21	113	0	0	0	0	62	21	0	0	0	44	35	0	585	2,274
5:15 PM	0	57	181	0	0	0	30	139	0	0	0	0	66	20	0	0	0	40	34	0	567	0
5:30 PM	0	76	200	0	0	0	15	130	1	0	0	1	42	15	0	0	1	46	33	0	560	0
5:45 PM	0	63	180	0	0	0	29	114	1	0	0	0	52	12	0	0	0	69	42	0	562	0

### Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound					Westbound					Northbound					Southbound					Total
	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	U-Turn	Left	Thru	Right	RTOR	
Articulated Trucks	0	0	7	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	1	0	19
Lights	0	276	754	1	0	0	95	479	2	0	0	1	221	68	0	0	1	195	141	0	2,234
Mediums	0	1	7	0	0	0	0	6	0	0	0	0	1	0	0	0	0	4	2	0	21
Total	0	277	768	1	0	0	95	496	2	0	0	1	222	68	0	0	1	199	144	0	2,274
Bicycles on Crosswalk			0					0					0					0			0
Heavy Vehicle Percentage			1.4%					2.9%					0.3%					2.0%			1.8%
Heavy Vehicle Percentage	0.0%	0.4%	1.8%	0.0%	0.0%	0.0%	0.0%	3.4%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	2.0%	2.1%	0.0%	1.8%
Peak Hour Factor (PHF)			0.90					0.88					0.98					0.77			0.97
Peak Hour Factor (PHF)	0.00	0.85	0.93	0.50	0.00	0.00	0.85	0.90	0.50	0.00	0.00	0.75	0.95	0.89	0.00	0.00	0.50	0.72	0.86	0.00	0.97

## **Appendix C – Model Traffic Volumes**

## REPORT:

## INPUT TRAFFIC FOR TNM VEHICLES (LAeq)

TNM VERSION:

3.1.7970.37608

REPORT DATE:

17 March 2022

CALCULATED WITH:

3.1.7970.37608

CALCULATION DATE:

3/17/2022 9:44:03 AM

CASE:

Falcon Highlands TNM

ORGANIZATION:

Matrix Design Group

ANALYSIS BY:

ryan.degroot

PROJECT/CONTRACT:

Roadway Name	Road Segment		Auto		Medium Truck		Heavy Truck		Bus		Motorcycle	
			Volume	Speed	Volume	Speed	Volume	Speed	Volume	Speed	Volume	Speed
	Name	No.										
Hwy 24-EB	Point-0	0	629	60	16	55	10	50	0	0	0	0
	Point-1	1	629	60	16	55	10	50	0	0	0	0
	Point-3	2	629	60	16	55	10	50	0	0	0	0
	Point-5	3	629	60	16	55	10	50	0	0	0	0
	Point-7	4	629	60	16	55	10	50	0	0	0	0
	Point-9	5	629	60	16	55	10	50	0	0	0	0
	Point-11	6	629	60	16	55	10	50	0	0	0	0
	Point-13	7	629	60	16	55	10	50	0	0	0	0
	Point-15	8	629	60	16	55	10	50	0	0	0	0
	Point-17	9	629	60	16	55	10	50	0	0	0	0
	Point-19	10	629	60	16	55	10	50	0	0	0	0
	Point-21	11	629	60	16	55	10	50	0	0	0	0
Hwy 24-WB	Point-40	22	946	60	12	55	19	50	0	0	0	0
	Point-41	23	946	60	12	55	19	50	0	0	0	0
	Point-43	24	946	60	12	55	19	50	0	0	0	0
	Point-45	25	946	60	12	55	19	50	0	0	0	0
	Point-47	26	946	60	12	55	19	50	0	0	0	0

Roadway Name	Road Segment		Auto		Medium Truck		Heavy Truck		Bus		Motorcycle	
	Start Point		Volume	Speed	Volume	Speed	Volume	Speed	Volume	Speed	Volume	Speed
	Name	No.										
			[Veh/hr]	[mph]	[Veh/hr]	[mph]	[Veh/hr]	[mph]	[Veh/hr]	[mph]	[Veh/hr]	[mph]
Hwy 24-WB	6826	27	946	60	12	55	19	50	0	0	0	0
	Point-51	28	946	60	12	55	19	50	0	0	0	0
	Point-53	29	946	60	12	55	19	50	0	0	0	0
	Point-55	30	946	60	12	55	19	50	0	0	0	0
	Point-57	31	946	60	12	55	19	50	0	0	0	0
	Point-59	32	946	60	12	55	19	50	0	0	0	0
	Point-61	33	946	60	12	55	19	50	0	0	0	0
	Point-63	34	946	60	12	55	19	50	0	0	0	0

## **Appendix D – Model Receivers**

**REPORT:****Results: Sound Levels - No Barrier Objects**

TNM VERSION	3.1.7970.37608	REPORT DATE:	17 March 2022
CALCULATED WITH:	3.1.7970.37608	CALCULATION DATE:	3/17/2022 9:44:03 AM
CASE:	Falcon Highlands TNM	ORGANIZATION:	Matrix Design Group
UNITS:	English	ANALYSIS BY:	ryan.degroot
DEFAULT GROUND TYPE:	Lawn	PROJECT/CONTRACT	
ATMOSPHERICS:	61°F, 20%	Average pavement type shall be used unless a state highway	
PAVEMENT TYPE(S) USED:	Average	use of a different type with approval FHWA.	

Receiver Name	Modeled Traffic Noise Levels
	Calculated LAeq (dBA)
Receiver-1	48.5
Receiver-2	48.6
Receiver-3	48.7
Receiver-4	46.4
Receiver-5	46.7
Receiver-6	51.7
Receiver-7	47.1
Receiver-8	47.3
Receiver-9	47.4
Receiver-10	47.6
Receiver-11	47.9
Receiver-12	46.4
Receiver-13	46.3