

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

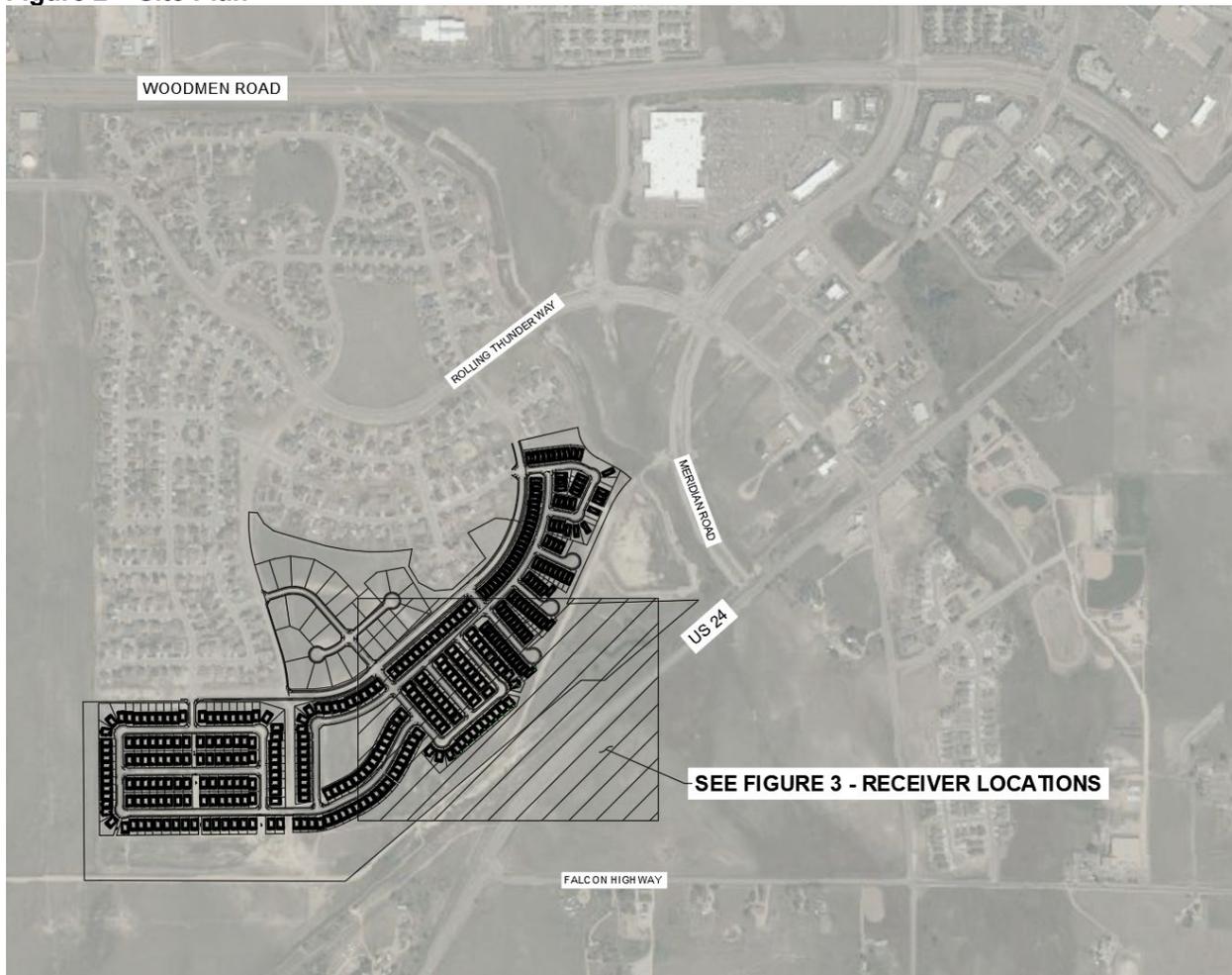
The Falcon Highlands Filing No. 3 development, herein referred to as “the site”, is a proposed development located in El Paso County, Colorado. The site includes 380 proposed single-family detached houses. The site is bounded by the existing Falcon Highlands Filing No. 2 to the north, Tamlin Road to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

Figure 1 – Vicinity Map



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

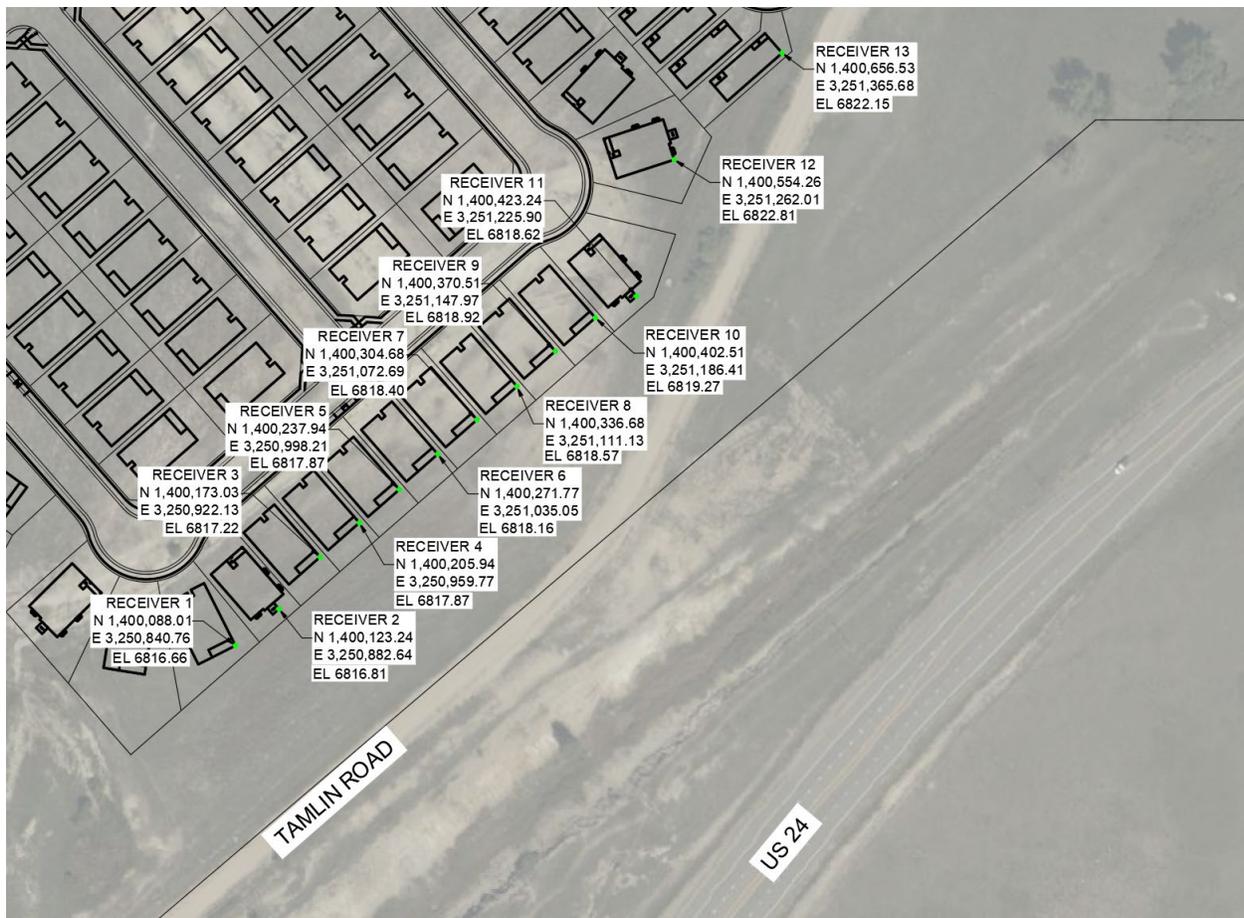
Direction	Auto	Medium Truck	Heavy Truck
US 24 EB	96.1%	2.4%	1.5%
US 24 WB	96.9%	1.2%	1.9%

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 or at (719) 575-0100.

Sincerely,



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

Appendix A – US 24 Traffic Volume

All Traffic Data Services
www.alltrafficdata.net

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	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	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	0	0	25
Lights	0	65	351	0	0	0	28	722	1	0	0	4	145	51	0	1	0	85	306	0	0	0	1,759
Mediums	0	1	21	0	0	0	0	9	0	0	0	0	4	1	0	0	0	3	0	0	0	39	
Total	0	67	382	0	0	0	28	744	1	0	0	4	150	52	0	1	0	88	306	0	0	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%	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	0.00	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	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	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	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	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	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	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	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	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	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%	
Peak Hour Factor (PHF)	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)	0.00	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	
	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-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