



LSC TRANSPORTATION CONSULTANTS, INC.
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September 28, 2020

Mr. P. A. Koscielski, Manager
CPR Entitlements, LLC
31 N Tejon St #500,
Colorado Springs, CO 80903

RE: Waterview North
Noise Impact Study
El Paso County, Colorado
LSC #204211

Dear Mr. Koscielski:

In response to your request, LSC Transportation Consultants, Inc. has completed this analysis of the noise impacts of Bradley Road on the proposed residential portion of the Waterview North Preliminary Plan, to be located north of Bradley Road and east of Powers Boulevard in El Paso County, Colorado. LSC has completed an evaluation of the noise exposure for submittal to the El Paso County in accordance with Federal Highway Administration (FHWA) and El Paso County requirements.

LSC used the software program Traffic Noise Model Version 2.5, developed by FHWA, to predict the noise levels at six locations on the southeast side of the development adjacent to Bradley Road where residential land uses are proposed. The receivers were placed 15 feet north of the residential parcel boundary. Figure 1 shows the location of the receivers. An elevation of five feet was assumed for the receivers.


The input data for the noise predictions included the projected traffic volumes, roadway geometries, topographic elevations, and receiver locations. The analysis was completed using the projected 2040 traffic volumes taken from the *Waterview North Updated Traffic Impact Analysis* by LSC dated September 25, 2020. The noise analysis input and output reports are attached.

All receiver locations along Bradley Road have predicted noise levels that would not exceed the 67 decibels Leq threshold where noise mitigation would be required set by the El Paso County *Engineering Criteria Manual*.

We trust that this noise impact study will assist you in planning the proposed Waterview North Preliminary Plan. Please contact me if you have any questions or need further assistance.

Respectfully submitted,

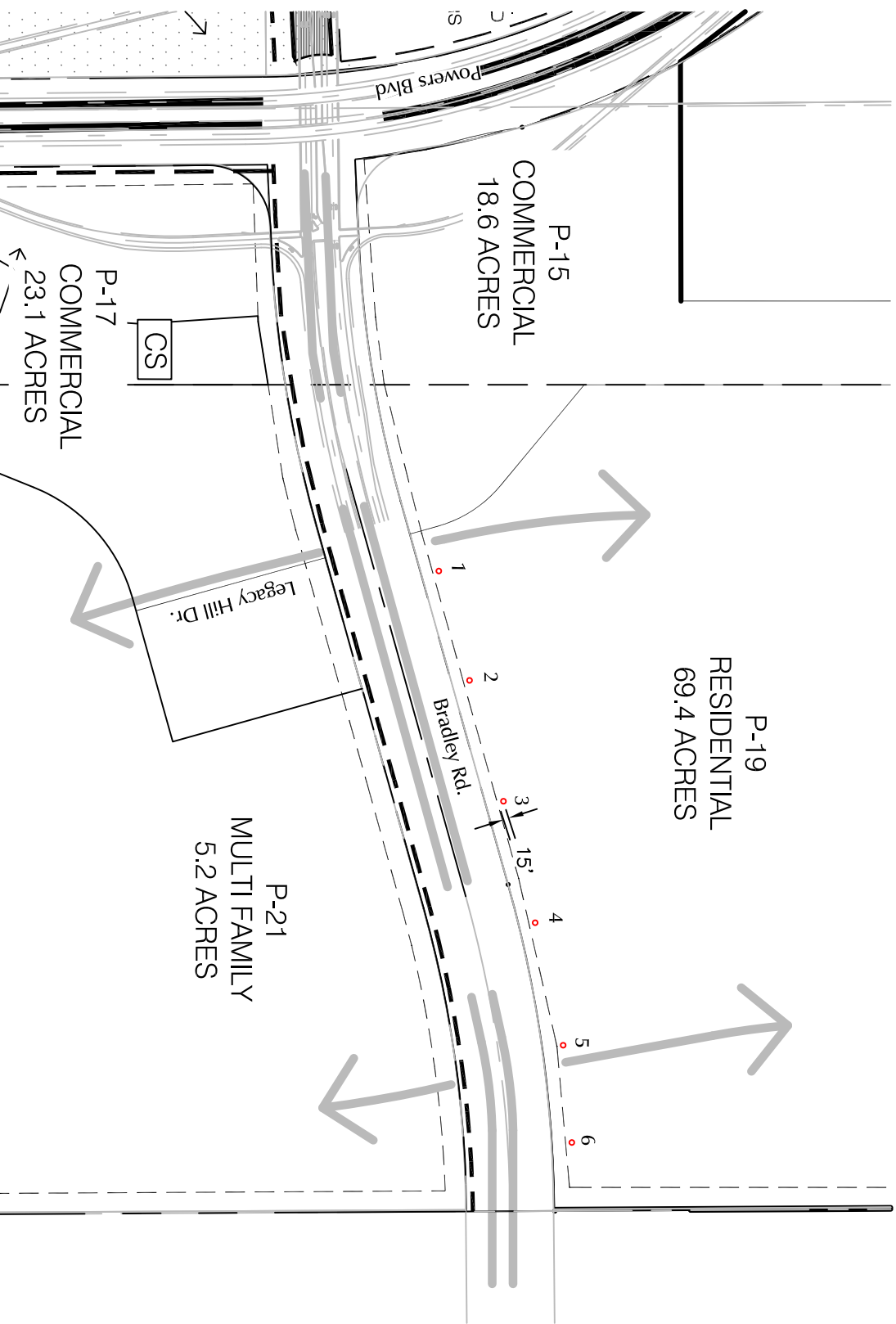
LSC TRANSPORTATION CONSULTANTS, INC.

By 
Kirstin Day Ferrin, P.E.
Senior Transportation Engineer



KDF:jas

Enclosures: Figure 1
Noise Analysis Input and Output Reports



○ = Receiver Locations

Noise Analysis Data

Figure 1

Waterview North Noise Analysis (LSC #204211)



RESULTS: SOUND LEVELS

Waterview North

LSC Transportation Consultants, Inc KDF						25 August 2020 TNM 2.5 Calculated with TNM 2.5							
RESULTS: SOUND LEVELS													
PROJECT/CONTRACT:		Waterview North											
RUN:		2040 PM Peak Hour											
BARRIER DESIGN:		INPUT HEIGHTS				Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.							
ATMOSPHERICS:		68 deg F, 50% RH											
Receiver													
Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated Goal			Calculated minus Goal
			dB	dB	dB	dB	dB		dB	dB	dB	dB	
Receiver1	1	1	0.0	66.9	67	66.9	10	----	66.9	0.0	8	-8.0	
Receiver2	2	1	0.0	66.3	67	66.3	10	----	66.3	0.0	8	-8.0	
Receiver3	3	1	0.0	65.8	67	65.8	10	----	65.8	0.0	8	-8.0	
Receiver4	4	1	0.0	66.0	67	66.0	10	----	66.0	0.0	8	-8.0	
Receiver5	6	1	0.0	64.3	67	64.3	10	----	64.3	0.0	8	-8.0	
Receiver6	7	1	0.0	64.9	67	64.9	10	----	64.9	0.0	8	-8.0	
Dwelling Units		# DUs	Noise Reduction										
			Min	Avg	Max								
			dB	dB	dB								
All Selected		6	0.0	0.0	0.0								
All Impacted		0	0.0	0.0	0.0								
All that meet NR Goal		0	0.0	0.0	0.0								

INPUT: TRAFFIC FOR LAeq1h Volumes

Waterview North

LSC Transportation Consultants, Inc		25 August 2020										
KDF		TNM 2.5										
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:		Waterview North										
RUN:		2040 PM Peak Hour										
Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos		V	S	V	S	V	S	V	S
					veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
EB Bradley Rd W/O Legacy Hills Dr	point1	1	1719	45	35	45	18	45	0	0	0	0
	point3	3	1719	45	35	45	18	45	0	0	0	0
	point4	4	1719	45	35	45	18	45	0	0	0	0
	point5	5	1719	45	35	45	18	45	0	0	0	0
	point6	6	1719	45	35	45	18	45	0	0	0	0
	point7	7	1719	45	35	45	18	45	0	0	0	0
	point2	2										
EB Bradley Rd E/O Legacy Hills Dr	point8	8	1255	45	26	45	13	45	0	0	0	0
	point10	10	1255	45	26	45	13	45	0	0	0	0
	point11	11	1255	45	26	45	13	45	0	0	0	0
	point12	12	1255	45	26	45	13	45	0	0	0	0
	point13	13	1255	45	26	45	13	45	0	0	0	0
	point14	14	1255	45	26	45	13	45	0	0	0	0
	point15	15	1255	45	26	45	13	45	0	0	0	0
	point16	16	1255	45	26	45	13	45	0	0	0	0
	point17	17	1255	45	26	45	13	45	0	0	0	0
	point18	18	1255	45	26	45	13	45	0	0	0	0
	point19	19	1255	45	26	45	13	45	0	0	0	0
	point20	20	1255	45	26	45	13	45	0	0	0	0
	point21	21	1255	45	26	45	13	45	0	0	0	0
	point22	22	1255	45	26	45	13	45	0	0	0	0
	point23	23	1255	45	26	45	13	45	0	0	0	0
	point24	24	1255	45	26	45	13	45	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

Waterview North

	point25	25	1255	45	26	45	13	45	0	0	0	0
	point26	26	1255	45	26	45	13	45	0	0	0	0
	point9	9										
EB Bradley Rd E/O RIRO	point27	27	1222	45	25	45	13	45	0	0	0	0
	point30	30	1222	45	25	45	13	45	0	0	0	0
	point31	31	1222	45	25	45	13	45	0	0	0	0
	point32	32	1222	45	25	45	13	45	0	0	0	0
	point33	33	1222	45	25	45	13	45	0	0	0	0
	point34	34	1222	45	25	45	13	45	0	0	0	0
	point35	35	1222	45	25	45	13	45	0	0	0	0
	point36	36	1222	45	25	45	13	45	0	0	0	0
	point37	37	1222	45	25	45	13	45	0	0	0	0
	point38	38	1222	45	25	45	13	45	0	0	0	0
	point39	39	1222	45	25	45	13	45	0	0	0	0
	point40	40	1222	45	25	45	13	45	0	0	0	0
	point41	41	1222	45	25	45	13	45	0	0	0	0
	point42	42	1222	45	25	45	13	45	0	0	0	0
	point43	43	1222	45	25	45	13	45	0	0	0	0
	point44	44	1222	45	25	45	13	45	0	0	0	0
	point45	45	1222	45	25	45	13	45	0	0	0	0
	point46	46	1222	45	25	45	13	45	0	0	0	0
	point47	47	1222	45	25	45	13	45	0	0	0	0
	point28	28										
WB Bradley Rd E/O RIRO	point48	48	1260	45	26	45	13	45	0	0	0	0
	point50	50	1260	45	26	45	13	45	0	0	0	0
	point51	51	1260	45	26	45	13	45	0	0	0	0
	point52	52	1260	45	26	45	13	45	0	0	0	0
	point53	53	1260	45	26	45	13	45	0	0	0	0
	point54	54	1260	45	26	45	13	45	0	0	0	0
	point55	55	1260	45	26	45	13	45	0	0	0	0
	point56	56	1260	45	26	45	13	45	0	0	0	0
	point57	57	1260	45	26	45	13	45	0	0	0	0
	point58	58	1260	45	26	45	13	45	0	0	0	0
	point59	59	1260	45	26	45	13	45	0	0	0	0
	point60	60	1260	45	26	45	13	45	0	0	0	0
	point61	61	1260	45	26	45	13	45	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

Waterview North

	point62	62	1260	45	26	45	13	45	0	0	0	0
	point63	63	1260	45	26	45	13	45	0	0	0	0
	point64	64	1260	45	26	45	13	45	0	0	0	0
	point65	65	1260	45	26	45	13	45	0	0	0	0
	point66	66	1260	45	26	45	13	45	0	0	0	0
	point67	67	1260	45	26	45	13	45	0	0	0	0
	point49	49										
WB Bradley Rd E/O Legacy Hills Dr	point68	68	1253	45	26	45	13	45	0	0	0	0
	point71	71	1253	45	26	45	13	45	0	0	0	0
	point72	72	1253	45	26	45	13	45	0	0	0	0
	point73	73	1253	45	26	45	13	45	0	0	0	0
	point74	74	1253	45	26	45	13	45	0	0	0	0
	point75	75	1253	45	26	45	13	45	0	0	0	0
	point76	76	1253	45	26	45	13	45	0	0	0	0
	point77	77	1253	45	26	45	13	45	0	0	0	0
	point78	78	1253	45	26	45	13	45	0	0	0	0
	point79	79	1253	45	26	45	13	45	0	0	0	0
	point80	80	1253	45	26	45	13	45	0	0	0	0
	point81	81	1253	45	26	45	13	45	0	0	0	0
	point82	82	1253	45	26	45	13	45	0	0	0	0
	point83	83	1253	45	26	45	13	45	0	0	0	0
	point84	84	1253	45	26	45	13	45	0	0	0	0
	point85	85	1253	45	26	45	13	45	0	0	0	0
	point86	86	1253	45	26	45	13	45	0	0	0	0
	point87	87	1253	45	26	45	0	45	0	0	0	0
	point69	69										
WB Bradley W/O Legacy Hill Dr	point88	88	1519	45	31	45	16	45	0	0	0	0
	point90	90	1519	45	31	45	16	45	0	0	0	0
	point91	91	1519	45	31	45	16	45	0	0	0	0
	point92	92	1519	45	31	45	16	45	0	0	0	0
	point93	93	1519	45	31	45	16	45	0	0	0	0
	point89	89										

INPUT: ROADWAYS

Waterview North

LSC Transportation Consultants, Inc											
KDF											

25 August 2020
TNM 2.5

INPUT: ROADWAYS

PROJECT/CONTRACT: Waterview North
RUN: 2040 PM Peak Hour

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway	Width	Points	No.	Coordinates (pavement)			Flow Control			Segment	
Name		Name		X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
EB Bradley Rd W/O Legacy Hills Dr	24.0	point1	1	11,852.9	8,559.6	5,940.00	Signal	0.00	50	Average	
		point3	3	12,056.2	8,576.0	5,938.00				Average	
		point4	4	12,240.2	8,603.2	5,936.00				Average	
		point5	5	12,362.6	8,628.1	5,934.00				Average	
		point6	6	12,439.9	8,646.7	5,932.00				Average	
		point7	7	12,526.7	8,670.5	5,930.00				Average	
		point2	2	12,614.0	8,694.7	5,928.00					
EB Bradley Rd E/O Legacy Hills Dr	24.0	point8	8	12,619.8	8,696.3	5,928.00	Signal	0.00	25	Average	
		point10	10	12,705.0	8,720.2	5,926.00				Average	
		point11	11	12,793.1	8,744.9	5,924.00				Average	
		point12	12	12,869.6	8,766.3	5,922.00				Average	
		point13	13	12,941.7	8,786.5	5,920.00				Average	
		point14	14	13,013.0	8,806.5	5,918.00				Average	
		point15	15	13,084.6	8,826.6	5,916.00				Average	
		point16	16	13,149.8	8,844.8	5,914.00				Average	
		point17	17	13,208.8	8,861.4	5,912.00				Average	
		point18	18	13,269.6	8,878.4	5,910.00				Average	
		point19	19	13,329.3	8,895.1	5,908.00				Average	
		point20	20	13,389.5	8,912.0	5,906.00				Average	
		point21	21	13,455.5	8,930.0	5,904.00				Average	
		point22	22	13,507.3	8,943.0	5,902.00				Average	
		point23	23	13,567.2	8,956.8	5,900.00				Average	
		point24	24	13,627.8	8,969.3	5,898.00				Average	
		point25	25	13,693.5	8,981.4	5,896.00				Average	
		point26	26	13,757.3	8,991.6	5,894.00				Average	

INPUT: ROADWAYS

Waterview North

		point9	9	13,823.3	9,000.5	5,892.00					
EB Bradley Rd E/O RIRO	24.0	point27	27	13,829.3	9,001.3	5,892.00					Average
		point30	30	13,878.2	9,006.8	5,890.00					Average
		point31	31	13,937.4	9,012.4	5,888.00					Average
		point32	32	13,999.7	9,016.9	5,886.00					Average
		point33	33	14,062.7	9,020.1	5,884.00					Average
		point34	34	14,121.2	9,021.7	5,882.00					Average
		point35	35	14,188.0	9,022.0	5,880.00					Average
		point36	36	14,254.3	9,021.9	5,878.00					Average
		point37	37	14,313.2	9,021.8	5,876.00					Average
		point38	38	14,377.1	9,021.7	5,874.00					Average
		point39	39	14,443.6	9,021.6	5,872.00					Average
		point40	40	14,504.2	9,021.5	5,870.00					Average
		point41	41	14,535.4	9,021.5	5,868.00					Average
		point42	42	14,565.0	9,021.4	5,866.00					Average
		point43	43	14,572.0	9,021.4	5,864.00					Average
		point44	44	14,575.4	9,021.4	5,862.00					Average
		point45	45	14,581.6	9,021.4	5,860.00					Average
		point46	46	14,604.2	9,021.4	5,858.00					Average
		point47	47	14,665.0	9,021.3	5,858.00					Average
		point28	28	14,767.3	9,021.1	5,858.00					
WB Bradley Rd E/O RIRO	24.0	point48	48	14,789.0	9,084.5	5,858.00					Average
		point50	50	14,688.8	9,084.7	5,860.00					Average
		point51	51	14,671.7	9,084.7	5,860.00					Average
		point52	52	14,567.1	9,084.9	5,860.00					Average
		point53	53	14,555.5	9,084.9	5,862.00					Average
		point54	54	14,552.1	9,084.9	5,864.00					Average
		point55	55	14,547.3	9,084.9	5,866.00					Average
		point56	56	14,535.4	9,084.9	5,868.00					Average
		point57	57	14,491.5	9,085.0	5,870.00					Average
		point58	58	14,429.8	9,085.1	5,872.00					Average
		point59	59	14,367.8	9,085.2	5,874.00					Average
		point60	60	14,309.2	9,085.3	5,876.00					Average
		point61	61	14,253.6	9,085.4	5,878.00					Average
		point62	62	14,199.0	9,085.5	5,880.00					Average
		point63	63	14,143.8	9,085.5	5,882.00					Average
		point64	64	14,087.4	9,084.4	5,884.00					Average
		point65	65	14,029.4	9,082.1	5,886.00					Average
		point66	66	13,971.0	9,078.6	5,888.00					Average

INPUT: ROADWAYS

Waterview North

		point67	67	13,911.8	9,073.8	5,890.00				Average
		point49	49	13,849.5	9,067.5	5,892.00				
WB Bradley Rd E/O Legacy Hills Dr	24.0	point68	68	13,843.5	9,066.8	5,892.00				Average
		point71	71	13,782.5	9,059.2	5,894.00				Average
		point72	72	13,715.7	9,049.3	5,896.00				Average
		point73	73	13,659.9	9,039.9	5,898.00				Average
		point74	74	13,603.7	9,029.2	5,900.00				Average
		point75	75	13,546.9	9,017.3	5,902.00				Average
		point76	76	13,465.6	8,998.1	5,904.00				Average
		point77	77	13,393.3	8,978.9	5,906.00				Average
		point78	78	13,321.4	8,958.8	5,908.00				Average
		point79	79	13,254.1	8,939.9	5,910.00				Average
		point80	80	13,187.1	8,921.2	5,912.00				Average
		point81	81	13,119.2	8,902.1	5,914.00				Average
		point82	82	13,050.4	8,882.9	5,916.00				Average
		point83	83	12,983.8	8,864.2	5,918.00				Average
		point84	84	12,921.5	8,846.7	5,920.00				Average
		point85	85	12,859.3	8,829.3	5,922.00				Average
		point86	86	12,775.0	8,805.7	5,924.00				Average
		point87	87	12,713.5	8,788.4	5,926.00				Average
		point69	69	12,596.8	8,755.8	5,928.00				
WB Bradley W/O Legacy Hill Dr	24.0	point88	88	12,591.0	8,754.1	5,928.00	Signal	0.00	25	Average
		point90	90	12,511.8	8,731.9	5,930.00				Average
		point91	91	12,385.1	8,699.1	5,932.00				Average
		point92	92	12,269.9	8,674.0	5,934.00				Average
		point93	93	12,127.3	8,649.7	5,936.00				Average
		point89	89	11,976.1	8,632.2	5,938.00				

INPUT: RECEIVERS

Waterview North

LSC Transportation Consultants, Inc KDF							25 August 2020 TNM 2.5				
INPUT: RECEIVERS											
PROJECT/CONTRACT:		Waterview North									
RUN:		2040 PM Peak Hour									
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height above Ground	Input Sound Levels and Criteria				Active in Calc.
			X	Y	Z		Existing LAeq1h	Impact Criteria LAeq1h	Sub'l	NR Goal	
			ft	ft	ft	ft	dBA	dBA	dB	dB	
Receiver1	1	1	12,623.1	8,872.7	5,938.00	4.92	0.00	67	10.0	8.0	Y
Receiver2	2	1	12,884.5	8,946.1	5,932.00	4.92	0.00	67	10.0	8.0	
Receiver3	3	1	13,173.3	9,027.1	5,916.00	4.92	0.00	67	10.0	8.0	
Receiver4	4	1	13,463.7	9,102.9	5,909.00	4.92	0.00	67	10.0	8.0	
Receiver5	6	1	13,756.5	9,169.8	5,892.50	4.92	0.00	67	10.0	8.0	Y
Receiver6	7	1	13,988.9	9,190.5	5,888.00	4.92	0.00	67	10.0	8.0	Y