

DUDEK

MEMORANDUM

To: Emmet Aquino, County of San Diego –Department
From: Mike Greene, Dudek
Subject: Pala Mesa Highlands Noise Levels
Date: May 13, 2015
Attachment(s): Figure 1, Figure 2, TNM model input / output files

As requested, I have reviewed and made some updates to the noise analysis originally conducted in 2004 by Pacific Noise Control. Using the original (future with project) TNM noise model file as a basis, but updating the traffic data input to reflect current San Diego Association of Governments (SANDAG) year 2050 volumes, I re-ran the model with the current version of TNM (version 2.5). The 2004 analysis used TNM version 1.0. Per FHWA guidance¹:

“23 CFR 772.17 requires the use of FHWA TNM version 2.5 or any other model determined by the FHWA to be consistent with the methodology of the FHWA TNM version 2.5. There have been several versions of the FHWA TNM that have been superseded by version 2.5. However, the changes in the versions have resulted in minor changes in how the user would use the model, especially from versions 1.1 to 2.1. The use of the model should not be confused with the results of the model. Identical input into different versions of the FHWA TNM, especially version 2.5 to earlier versions, would result in some differences in calculated sound level results. This is due to some changes to the algorithms in version 2.5 and not how the user would use the model. Information on the differences between the versions can be found on the Release Notes, User's Guide Addendum and/or Validation Studies listed on the webpages for the individual versions of the FHWA TNM”

FHWA has conducted extensive validation studies in the intervening years since 2004, providing substantial evidence of the current model's validity. For this reason, the current version (TNM version 2.5) was used without further adjustment, beyond the geometry and configuration modifications detailed below:

- **Building Rows:** The original TNM files did not account for the fact that each of the residential lots would have buildings on them. The developer designed the project with

¹ https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/tnm_v25/

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the forethought to situate the front facades of the first row of homes facing the I-15 and Old Hwy 395, with the rear yards shielded by the structures. The revised modeling accounts for this by incorporating building row modeling elements into the TNM file. Conservative assumptions (building row height of 12 feet and 70% building coverage) were assumed.

- **Mitigation Approach:** As shown in Figure 1, the mitigation strategy was revised, to utilize the berm/wall between Old Hwy 395 and Via de Todos Santos as the primary means of noise mitigation for the on-site noise-sensitive uses. Additionally, walls were modeled at the top of the slope between the first and second row of homes. The proposed, revised walls are shown in Figure 1. Figure 1 also shows which lots require the residential homes for acoustical screening.

Future traffic ADT (year 2050 SANDAG projections), vehicle mix percentages, and modeled speeds were as follows (Table 1):

Table 1
Key Noise Model Inputs

Noise Model Input Parameter	I-15	Old Highway 395
Modeled ADT (SANDAG Year 2050) ²	123,1000 northbound 107,800 southbound	6,600
Vehicle Speed (Autos/Medium Trucks/Heavy Trucks)	65 / 65 / 65	55 / 55 / 55
Traffic Mix (Percent Autos / Medium Trucks / Heavy Trucks)	91.9 / 2.6 / 5.5	96.5 / 2.8 / 0.7

The TNM results (future with project, mitigated) are summarized in Table 2. As shown, the proposed approach would result in on-site noise levels below 60 dBA CNEL at residential yards and below 65 dBA CNEL at the park sites with the mitigation provided. Note that the barrier heights shown are for the height of the screen wall (i.e., as constructed atop the planned berm where applicable). Figure 1 shows the updated wall design which would satisfy the applicable County of San Diego noise standards. Figure 2 shows the 75, 70 and 60 dBA CNEL noise contours in the absence of the planned walls, berm or residential structures.

² 14% of the ADT was input as the hourly modeled volume in order to arrive at the equivalent CNEL. This was the same method used in the 2004 noise analysis.

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Table 2
Future Noise Modeling Results
(dBA CNEL)

Receiver ^{2,3}	Barrier Heights ¹						
	0' Barrier	2' Barrier	4' Barrier	6' Barrier	8' Barrier	10' Barrier	12' Barrier
Lot 1	59	58	58	58	58	58	58
Lot 2	59	57	57	57	57	57	57
Lot 3	59	57	57	57	57	57	57
Lot 4	59	57	57	57	58	58	57
Lot 6	59	57	57	57	57	57	57
Lot 9	59	57	57	57	57	57	57
Lot 12	59	57	56	56	56	56	56
Lot 13	59	57	56	56	56	56	56
Lot 14	59	57	56	56	56	55	55
Lot 15	61	61	61	59	55	54	53
Lot 16	60	59	59	58	57	56	56
Lot 17	59	59	59	58	58	57	56
Lot 18	59	59	59	58	58	57	57
Lot 19	59	59	59	59	58	57	57
Lot 26	62	61	61	56	54	53	51
Lot 44	60	59	59	59	59	59	58
Lot 46	56	55	55	54	54	54	53
Lot 56 / 50	64	63	61	58	56	55	53
Lot 58 / 52	61	61	61	57	55	53	51
Lot 61 / 65	60	59	59	56	55	53	51
Lot 62 / 56	61	60	60	56	55	53	51
Lot 67 / 61	64	64	62	60	57	55	53
Lot 71 / 65	62	62	61	57	55	53	51
Lot 91 / 85	59	58	58	58	57	57	56
Lot 102 / 96	56	56	56	55	55	55	54
Lot 103 /	63	63	60	58	56	55	53
Lot 104 / 103	62	62	59	58	56	55	53
Lot 105 / 99	62	62	60	58	57	55	54
Lot 106 / 100	62	62	60	59	57	55	54
Lot 108 / 97	59	56	56	56	56	56	56
Lot 109 / 103	59	57	57	57	57	56	56
Lot 112 / 106	60	57	57	57	57	57	57
Lot 114 / 108	60	57	57	57	57	57	57
Lot 121 / 115	59	57	57	58	58	58	58
Lot 123 / 117	59	57	57	57	57	57	57
Lot 127 / 121	59	57	58	58	58	58	58
Lot 128 / 122	60	58	58	58	58	58	58

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Table 2
Future Noise Modeling Results
(dBA CNEL)

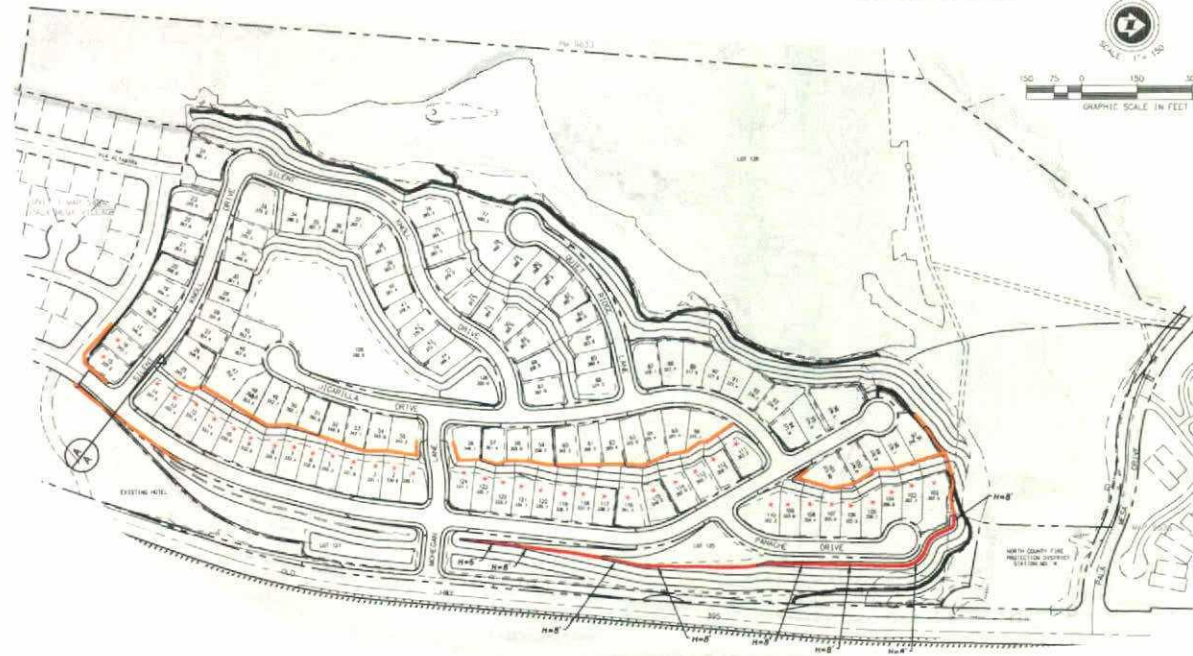
Receiver ^{2,3}	Barrier Heights ¹						
	0' Barrier	2' Barrier	4' Barrier	6' Barrier	8' Barrier	10' Barrier	12' Barrier
Lot 129 / 123	60	58	58	58	58	58	58
Lot 130 / 124	59	58	58	58	59	58	59
Park1	57	56	55	55	54	53	53
Park2	58	56	56	56	56	55	55
TOT LOT / Lot 125	62	62	62	62	61	61	60

¹ The following receiver lots require the residential structure for screening: Lots 1 – 14, 15, 16, 108-130.

² Barrier heights and corresponding noise levels shown are for the screen wall, as constructed atop the previously planned and designed berm (where applicable).

³ Lot XX/YY = Prior lot number (as used in the TNM modeling)/Revised lot number (as shown in Figure 1).

COUNTY OF SAN DIEGO TRACT TM5187 RPL11 WALL PLAN

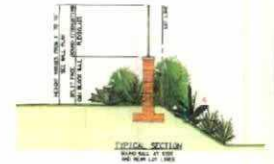
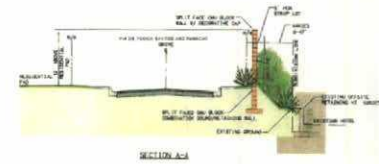


LEGEND

SUBDIVISION BND
LOT LINE
SOUND WALL
SOUNDWALL/BERM COMBINATION



NOTES:
PER QUADR STUDY DATED 4/2015



SOUND WALL / BERM ELEVATION

SCALE: HORIZ. 1" = 30'
VERT. 1" = 30'

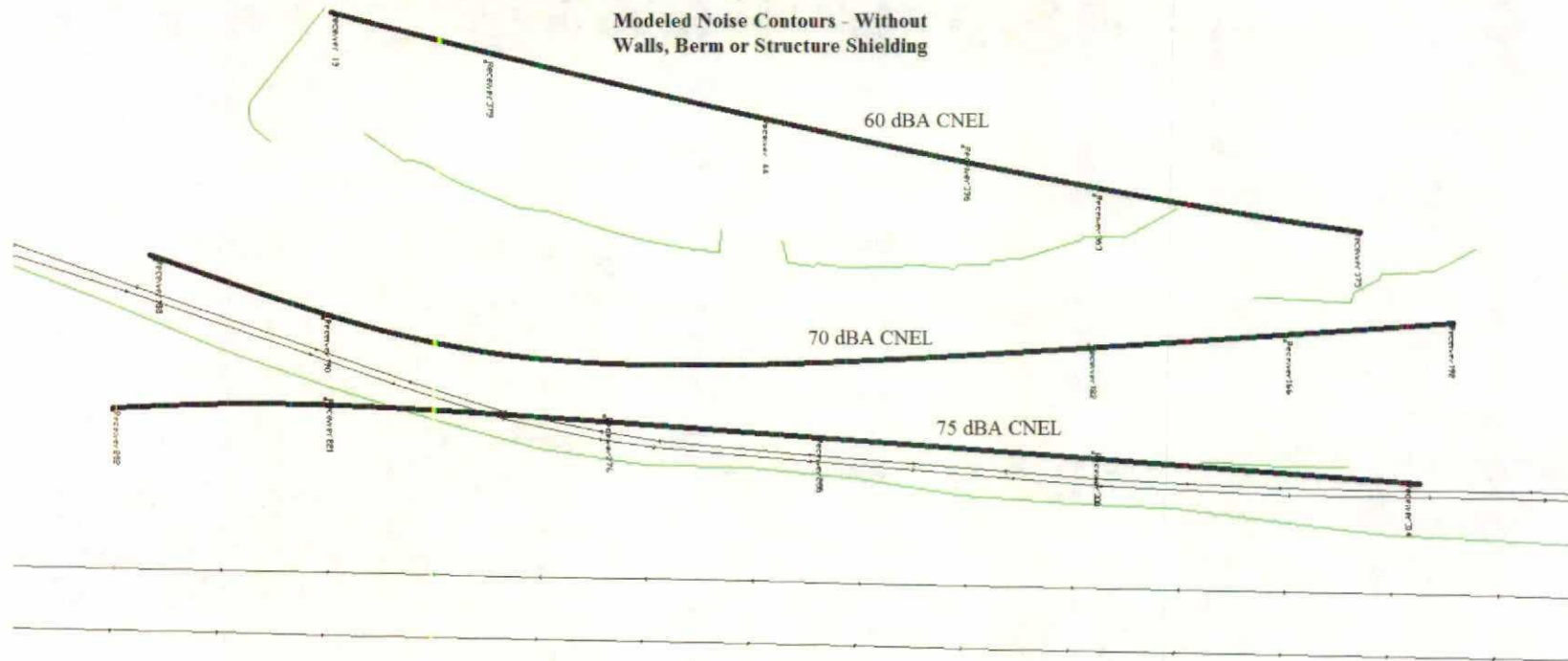
* - Lots requiring the acoustical shielding provided by the building to meet the County noise standard

Figure 1

WALL PLAN
SOUNDWALL
PALA MESA HIGHLANDS
SAN DIEGO COUNTY
PROJECT NUMBER: 001760001-01
DATE: 04/2015
SHEET 01 OF 01



Figure 2
Modeled Noise Contours - Without
Walls, Berm or Structure Shielding



INPUT: ROADWAYS

<Project Name?>

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5

INPUT: ROADWAYS

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa Resi Proj 041415 2050 vols

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

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Old Hwy 395 SB	12.0	H18	1	3,811.0	9,999.0	311.00				Average	
		H17	9	3,800.0	9,450.0	311.00				Average	
		H16	24	3,783.0	9,160.0	314.00				Average	
		H15	10	3,776.0	9,010.0	315.00				Average	
		point14	11	3,761.0	8,697.0	318.00				Average	
		point13	12	3,758.0	8,468.0	320.00				Average	
		point12	13	3,753.0	8,226.0	321.00				Average	
		point11	14	3,735.0	7,879.0	321.00				Average	
		point10	15	3,721.0	7,711.0	321.00				Average	
		point9	16	3,706.0	7,537.0	322.00				Average	
		point8	17	3,689.0	7,342.0	323.00				Average	
		point?	18	3,664.0	7,061.0	322.00				Average	
		point6	19	3,646.0	6,951.0	321.00				Average	
		point5	20	3,608.0	6,770.0	320.00				Average	
		point4	21	3,553.0	6,591.0	318.00				Average	
		point3	22	3,492.0	6,414.0	316.00				Average	
		H2	23	3,375.0	6,078.0	312.00				Average	
		H1	2	3,297.0	5,850.0	312.00					
Old Hwy 395 NB	12.0	L1	3	3,311.0	5,830.0	312.00				Average	
		L2	41	3,385.0	6,065.0	312.00				Average	
		point20	42	3,503.0	6,410.0	316.00				Average	
		point21	43	3,558.0	6,567.0	318.00				Average	
		point22	44	3,623.0	6,773.0	320.00				Average	
		point23	45	3,661.0	6,955.0	321.00				Average	
		point24	46	3,675.0	7,056.0	322.00				Average	
		point25	47	3,702.0	7,351.0	323.00				Average	
		point26	48	3,718.0	7,544.0	322.00				Average	

INPUT: ROADWAYS

<Project Name?>

		point27	49	3,735.0	7,732.0	321.00			Average	
		point28	50	3,749.0	7,897.0	321.00			Average	
		point29	51	3,766.0	8,250.0	321.00			Average	
		point30	52	3,770.0	8,514.0	320.00			Average	
		point31	53	3,776.0	8,729.0	318.00			Average	
		point32	54	3,788.0	9,008.0	315.00			Average	
		point33	55	3,796.0	9,172.0	314.00			Average	
		point80	56	3,813.0	9,461.0	311.00			Average	
		L18	4	3,823.0	9,999.0	310.00				
I15 NB	48.0	N1	5	4,006.0	5,470.0	278.00			Average	
		N2	57	4,010.0	5,633.0	279.00			Average	
		N3	58	4,013.0	5,833.0	280.00			Average	
		N4	59	4,017.0	6,033.0	281.00			Average	
		N5	60	4,021.0	6,233.0	281.00			Average	
		N6	61	4,026.0	6,433.0	283.00			Average	
		N7	62	4,030.0	6,633.0	283.00			Average	
		N8	63	4,034.0	6,833.0	285.00			Average	
		N9	64	4,039.0	7,033.0	285.00			Average	
		N10	65	4,043.0	7,233.0	287.00			Average	
		N11	66	4,047.0	7,433.0	287.00			Average	
		N12	67	4,052.0	7,633.0	289.00			Average	
		N13	68	4,056.0	7,833.0	289.00			Average	
		N14	69	4,060.0	8,033.0	289.00			Average	
		N15	70	4,065.0	8,233.0	291.00			Average	
		N16	71	4,069.0	8,433.0	291.00			Average	
		N17	72	4,073.0	8,633.0	291.00			Average	
		N18	73	4,078.0	8,833.0	293.00			Average	
		N19	74	4,082.0	9,033.0	293.00			Average	
		N20	75	4,086.0	9,233.0	295.00			Average	
		N21	76	4,091.0	9,322.0	295.00			Average	
		N22	6	4,107.0	9,999.0	296.00				
I15 SB	48.0	S22	7	3,988.0	9,999.0	296.00			Average	
		S21	25	3,974.0	9,340.0	295.00			Average	
		S20	26	3,969.0	9,235.0	295.00			Average	
		S19	27	3,965.0	9,035.0	293.00			Average	
		S18	28	3,961.0	8,835.0	293.00			Average	
		S17	29	3,956.0	8,635.0	291.00			Average	
		S16	30	3,952.0	8,435.0	291.00			Average	
		S15	31	3,948.0	8,235.0	291.00			Average	
		S14	32	3,944.0	8,035.0	289.00			Average	

INPUT: ROADWAYS

<Project Name?>

		S13	33	3,939.0	7,835.0	289.00				Average	
		S12	34	3,935.0	7,635.0	289.00				Average	
		S11	35	3,931.0	7,435.0	287.00				Average	
		S10	79	3,926.0	7,235.0	287.00				Average	
		S9	80	3,922.0	7,035.0	285.00				Average	
		S8	81	3,918.0	6,835.0	285.00				Average	
		S7	36	3,913.0	6,635.0	283.00				Average	
		S6	37	3,909.0	6,435.0	283.00				Average	
		S5	38	3,905.0	6,235.0	281.00				Average	
		S4	39	3,900.0	6,035.0	281.00				Average	
		S3	77	3,896.0	5,835.0	280.00				Average	
		S2	78	3,891.0	5,635.0	279.00				Average	
		S1	40	3,884.0	5,358.0	278.00					

INPUT: TRAFFIC FOR LAeq1h Volumes

<Project Name?>

Dudek for Beazer

7 May 2015

M Greene originated by M Komula

TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa Resi Proj 041415 2050 vols

Roadway	Points												
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles		
			Autos		V	S	V	S	V	S	V	S	
			V	S	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Old Hwy 395 SB	H13	1	446	55	13	55	4	55	0	0	0	0	
	H17	9	446	55	13	55	4	55	0	0	0	0	
	H16	24	446	55	13	55	4	55	0	0	0	0	
	H15	10	446	55	13	55	4	55	0	0	0	0	
	point14	11	446	55	13	55	4	55	0	0	0	0	
	point13	12	446	55	13	55	4	55	0	0	0	0	
	point12	13	446	55	13	55	4	55	0	0	0	0	
	point11	14	446	55	13	55	4	55	0	0	0	0	
	point10	15	446	55	13	55	4	55	0	0	0	0	
	point9	16	446	55	13	55	4	55	0	0	0	0	
	point8	17	446	55	13	55	4	55	0	0	0	0	
	point?	18	446	55	13	55	4	55	0	0	0	0	
	point6	19	446	55	13	55	4	55	0	0	0	0	
	point5	20	446	55	13	55	4	55	0	0	0	0	
	point4	21	446	55	13	55	4	55	0	0	0	0	
	point3	22	446	55	13	55	4	55	0	0	0	0	
	H2	23	446	55	13	55	4	55	0	0	0	0	
	H1	2											
Old Hwy 395 NB	L1	3	446	55	13	55	4	55	0	0	0	0	
	L2	41	446	55	13	55	4	55	0	0	0	0	
	point20	42	446	55	13	55	4	55	0	0	0	0	
	point21	43	446	55	13	55	4	55	0	0	0	0	
	point22	44	446	55	13	55	4	55	0	0	0	0	
	point23	45	446	55	13	55	4	55	0	0	0	0	
	point24	46	446	55	13	55	4	55	0	0	0	0	

INPUT: TRAFFIC FOR LAeq1h Volumes

<Project Name?>

	point25	47	446	55	13	55	4	55	0	0	0	0
	point26	48	446	55	13	55	4	55	0	0	0	0
	point27	49	446	55	13	55	4	55	0	0	0	0
	point28	50	446	55	13	55	4	55	0	0	0	0
	point29	51	446	55	13	55	4	55	0	0	0	0
	point30	52	446	55	13	55	4	55	0	0	0	0
	point31	53	446	55	13	55	4	55	0	0	0	0
	point32	54	446	55	13	55	4	55	0	0	0	0
	point33	55	446	55	13	55	4	55	0	0	0	0
	point80	56	446	55	13	55	4	55	0	0	0	0
	L18	4										
I15 NB	N1	5	15838	65	448	65	948	65	0	0	0	0
	N2	57	15838	65	448	65	948	65	0	0	0	0
	N3	58	15838	65	448	65	948	65	0	0	0	0
	N4	59	15838	65	448	65	948	65	0	0	0	0
	N5	60	15838	65	448	65	948	65	0	0	0	0
	N6	61	15838	65	448	65	948	65	0	0	0	0
	N7	62	15838	65	448	65	948	65	0	0	0	0
	N8	63	15838	65	448	65	948	65	0	0	0	0
	N9	64	15838	65	448	65	948	65	0	0	0	0
	N10	65	15838	65	448	65	948	65	0	0	0	0
	N11	66	15838	65	448	65	948	65	0	0	0	0
	N12	67	15838	65	448	65	948	65	0	0	0	0
	N13	68	15838	65	448	65	948	65	0	0	0	0
	N14	69	15838	65	448	65	948	65	0	0	0	0
	N15	70	15838	65	448	65	948	65	0	0	0	0
	N16	71	15838	65	448	65	948	65	0	0	0	0
	N17	72	15838	65	448	65	948	65	0	0	0	0
	N18	73	15838	65	448	65	948	65	0	0	0	0
	N19	74	15838	65	448	65	948	65	0	0	0	0
	N20	75	15838	65	448	65	948	65	0	0	0	0
	N21	76	15838	65	448	65	948	65	0	0	0	0
	N22	6										
I15 SB	S22	7	13870	65	392	65	830	65	0	0	0	0
	S21	25	13870	65	392	65	830	65	0	0	0	0
	S20	26	13870	65	392	65	830	65	0	0	0	0
	S19	27	13870	65	392	65	830	65	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

<Project Name?>

S18	28	13870	65	392	65	830	65	0	0	0	0
S17	29	13870	65	392	65	830	65	0	0	0	0
S16	30	13870	65	392	65	830	65	0	0	0	0
S15	31	13870	65	392	65	830	65	0	0	0	0
S14	32	13870	65	392	65	830	65	0	0	0	0
S13	33	13870	65	392	65	830	65	0	0	0	0
S12	34	13870	65	392	65	830	65	0	0	0	0
S11	35	13870	65	392	65	830	65	0	0	0	0
S10	79	13870	65	392	65	830	65	0	0	0	0
S9	80	13870	65	392	65	830	65	0	0	0	0
S8	81	13870	65	392	65	830	65	0	0	0	0
S7	36	13870	65	392	65	830	65	0	0	0	0
S6	37	13870	65	392	65	830	65	0	0	0	0
S5	38	13870	65	392	65	830	65	0	0	0	0
S4	39	13870	65	392	65	830	65	0	0	0	0
S3	77	13870	65	392	65	830	65	0	0	0	0
S2	78	13870	65	392	65	830	65	0	0	0	0
S1	40										

INPUT: RECEIVERS

<Project Name?>

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5

INPUT: RECEIVERS

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa Resi Proj 041415 2050 vols

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		dBA	dBA	dB	dB	
Receiver 1	1	1	3,370.1	7,179.5	332.00	5.00	0.00	66	10.0	8.0	Y
Receiver 2	3	1	3,360.9	7,138.4	331.00	5.00	0.00	66	10.0	8.0	Y
Receiver 3	4	1	3,355.4	7,086.9	331.00	5.00	0.00	66	10.0	8.0	Y
Receiver 4	5	1	3,350.3	7,029.0	332.00	5.00	0.00	66	10.0	8.0	Y
Receiver 6	6	1	3,312.3	6,904.4	332.00	5.00	0.00	66	10.0	8.0	Y
Receiver 9	7	1	3,269.6	6,744.5	333.00	5.00	0.00	66	10.0	8.0	Y
Receiver 12	8	1	3,227.0	6,577.0	331.00	5.00	0.00	66	10.0	8.0	Y
Receiver 13	9	1	3,186.0	6,514.0	331.00	5.00	0.00	66	10.0	8.0	Y
Receiver 14	10	1	3,142.0	6,459.0	332.00	5.00	0.00	66	10.0	8.0	Y
Receiver 15	11	1	3,039.0	6,312.0	340.00	5.00	0.00	66	10.0	8.0	Y
Receiver 16	12	1	2,992.0	6,350.0	344.00	5.00	0.00	66	10.0	8.0	Y
Receiver 17	13	1	2,948.0	6,387.0	348.00	5.00	0.00	66	10.0	8.0	Y
Receiver 18	14	1	2,914.0	6,418.0	352.00	5.00	0.00	66	10.0	8.0	Y
Receiver 19	15	1	2,865.0	6,445.0	356.00	5.00	0.00	66	10.0	8.0	Y
Receiver 25	16	1	3,113.0	6,566.0	345.00	5.00	0.00	66	10.0	8.0	Y
Receiver 37	17	1	2,720.0	6,989.0	386.00	5.00	0.00	66	10.0	8.0	Y
Receiver 44	18	1	3,062.0	7,253.0	371.00	5.00	0.00	66	10.0	8.0	Y
Receiver 46	19	1	3,016.0	6,972.0	358.00	5.00	0.00	66	10.0	8.0	Y
Receiver 56	20	1	3,216.0	6,822.0	352.00	5.00	0.00	66	10.0	8.0	Y
Receiver 58	21	1	3,256.0	6,963.0	349.00	5.00	0.00	66	10.0	8.0	Y
Receiver 61	22	1	3,293.0	7,163.0	345.00	5.00	0.00	66	10.0	8.0	Y
Receiver 62	23	1	3,319.0	7,314.0	349.00	5.00	0.00	66	10.0	8.0	Y
Receiver 67	24	1	3,320.0	7,650.0	366.00	5.00	0.00	66	10.0	8.0	Y
Receiver 71	25	1	3,272.0	7,893.0	377.00	5.00	0.00	66	10.0	8.0	Y

INPUT: RECEIVERS

								<Project Name?>			
Receiver 91	26	1	3,130.0	7,634.0	375.00	5.00	0.00	66	10.0	8.0	Y
Receiver 102	27	1	3,161.0	8,342.0	378.00	5.00	0.00	66	10.0	8.0	Y
Receiver 103	28	1	3,308.0	8,547.0	380.00	5.00	0.00	66	10.0	8.0	Y
Receiver 104	29	1	3,316.0	8,481.0	379.00	5.00	0.00	66	10.0	8.0	Y
Receiver 105	30	1	3,327.0	8,432.0	378.00	5.00	0.00	66	10.0	8.0	Y
Receiver 106	31	1	3,347.0	8,383.0	376.00	5.00	0.00	66	10.0	8.0	Y
Receiver 108	32	1	3,375.6	8,582.2	358.00	5.00	0.00	66	10.0	8.0	Y
Receiver 109	33	1	3,392.8	8,520.6	358.00	5.00	0.00	66	10.0	8.0	Y
Receiver 112	34	1	3,438.7	8,355.8	356.00	5.00	0.00	66	10.0	8.0	Y
Receiver 114	35	1	3,441.2	8,239.4	355.00	5.00	0.00	66	10.0	8.0	Y
Receiver 121	36	1	3,368.8	7,826.4	348.00	5.00	0.00	66	10.0	8.0	Y
Receiver 123	37	1	3,404.8	7,701.4	339.00	5.00	0.00	66	10.0	8.0	Y
Receiver 127	38	1	3,400.4	7,464.5	335.00	5.00	0.00	66	10.0	8.0	Y
Receiver 128	39	1	3,393.0	7,409.8	334.00	5.00	0.00	66	10.0	8.0	Y
Receiver 129	40	1	3,388.4	7,354.8	333.00	5.00	0.00	66	10.0	8.0	Y
Receiver130	41	1	3,378.7	7,308.2	332.00	5.00	0.00	66	10.0	8.0	Y
Park1	42	1	3,113.0	7,024.0	353.00	5.00	0.00	66	10.0	8.0	Y
Park2	43	1	3,150.0	7,239.0	353.00	5.00	0.00	66	10.0	8.0	Y
Receiver TOTLOT	44	1	3,547.0	7,978.0	350.00	5.00	0.00	66	10.0	8.0	Y

INPUT: BARRIERS

<Project Name?>

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5

INPUT: BARRIERS

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa Resi Proj 041415 2050 vols

Barrier									Points											
Name	Type	Height		If Wall	If Berm				Add'tnl	Name	No.	Coordinates (bottom)				Height	Segment			
		Min	Max	\$ per Unit Area	\$ per Unit Vol.	Top Width	Run:Rise	\$ per Unit Length				X	Y	Z	at Point	Seg Incre-	Ht #Up	Perturbs #Dn	On Struct?	Important Reflec-tions?
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft				ft	ft	ft	ft	ft				
Wall on Berm - S	W	0.00	99.99	0.00				0.00		point96T01	114	3,120.2	6,265.9	336.00	6.00	2.00	3	2		
										point97TO	116	3,191.0	6,341.0	330.00	6.00	2.00	3	2		
										point98TO	117	3,256.0	6,416.0	330.00	6.00	2.00	3	2		
										point99T1	118	3,296.0	6,471.0	330.00	6.00	2.00	3	2		
										point100T2	119	3,348.0	6,561.0	332.00	6.00	2.00	3	2		
										point101T3	120	3,426.0	6,670.0	336.00	6.00	2.00	3	2		
										point102T4	121	3,446.0	6,718.0	338.00	6.00	2.00	3	2		
										point103T5	122	3,492.0	6,898.0	338.00	6.00	2.00	3	2		
										point104T6	123	3,514.0	6,988.0	338.00	6.00	2.00	3	2		
										point105T7	124	3,527.0	7,103.0	340.00	6.00	2.00	3	2		
										point106T8	125	3,534.0	7,164.0	340.00	6.00	2.00	3	2		
										point107T9	126	3,536.0	7,184.0	338.00	6.00					
Lots 105-109	W	0.00	99.99	0.00				0.00		point175	175	3,396.0	8,179.0	370.00	6.00	2.00	3	2		
										point176	176	3,406.0	8,361.0	370.00	6.00	2.00	3	2		
										point177	177	3,388.0	8,368.0	376.00	6.00	2.00	3	2		
										point178	178	3,362.0	8,416.0	376.00	6.00	2.00	3	2		
										point179	179	3,353.0	8,418.0	378.00	6.00	2.00	3	2		
										point180	180	3,349.0	8,517.0	378.00	6.00	2.00	3	2		
										point181	181	3,340.0	8,536.0	380.00	6.00	2.00	3	2		
										point182	182	3,304.0	8,600.0	380.00	6.00					
Barrier45-Lot 26	W	0.00	99.99	0.00				0.00		point217	217	3,089.0	6,508.0	345.00	6.00	2.00	3	2		
										point218	218	3,142.0	6,583.0	345.00	6.00	2.00	3	2		
										point219	219	3,140.0	6,597.0	348.00	6.00	2.00	3	2		
										point220	220	3,148.1	6,622.0	355.00	6.00	2.00	3	2		
										point204	204	3,178.7	6,675.2	355.00	6.00	2.00	3	2		
										point205	205	3,207.0	6,744.0	352.00	6.00	2.00	3	2		
										point206	206	3,230.0	6,799.0	352.00	6.00	2.00	3	2		
										point207	207	3,235.0	6,854.0	352.00	6.00	2.00	3	2		
										point208	208	3,237.0	6,860.0	352.00	6.00	2.00	3	2		
										point209	209	3,256.0	6,916.0	352.00	6.00	2.00	3	2		
										point210	210	3,259.0	6,921.0	349.00	6.00	2.00	3	2		
										point211	211	3,276.0	6,983.0	349.00	6.00	2.00	3	2		
										point212	212	3,278.0	6,987.0	348.00	6.00	2.00	3	2		
										point213	213	3,292.0	7,046.0	348.00	6.00	2.00	3	2		
										point214	214	3,304.0	7,112.0	345.00	6.00	2.00	3	2		
										point215	215	3,313.0	7,177.0	345.00	6.00	2.00	3	2		
										point216	216	3,268.0	7,179.0	345.00	6.00					

INPUT: BARRIERS

<Project Name?>

Lots 68-74-Lot 64	W	0.00	99.99	0.00			0.00	point199	199	3,290.0	7,293.0	349.00	6.00	2.00	3	2		
								point200	200	3,332.0	7,303.0	349.00	6.00	2.00	3	2		
								point201	201	3,339.0	7,352.0	349.00	6.00	2.00	3	2		
								point202	202	3,334.0	7,358.0	351.00	6.00	2.00	3	2		
								point203	203	3,342.0	7,417.0	351.00	6.00	2.00	3	2		
								point189	189	3,338.0	7,557.0	362.00	6.00	2.00	3	2		
								point190	190	3,344.0	7,618.0	362.00	6.00	2.00	3	2		
								point191	191	3,336.0	7,625.0	366.00	6.00	2.00	3	2		
								point192	192	3,336.0	7,682.0	366.00	6.00	2.00	3	2		
								point193	193	3,328.0	7,689.0	370.00	6.00	2.00	3	2		
								point194	194	3,325.0	7,741.0	370.00	6.00	2.00	3	2		
								point195	195	3,289.0	7,857.0	376.00	6.00	2.00	3	2		
								point196	196	3,283.0	7,861.0	377.00	6.00	2.00	3	2		
								point197	197	3,282.0	7,942.0	377.00	6.00	2.00	3	2		
								point198	198	3,229.0	8,038.0	378.00	6.00					
Barrier50-Wall on Berm - N	W	0.00	99.99	0.00			0.00	point109T1	127	3,548.0	7,292.0	340.00	6.00	2.00	3	2		
								point110T1	129	3,559.0	7,392.0	342.00	6.00	2.00	3	2		
								point111T1	130	3,592.0	7,685.0	350.00	6.00	2.00	3	2		
								point112T1	131	3,606.0	7,818.0	352.00	6.00	2.00	3	2		
								point113T1	132	3,609.0	7,904.0	354.00	6.00	2.00	3	2		
								point114T1	133	3,616.0	8,234.0	362.00	6.00	2.00	3	2		
								point115T1	134	3,621.0	8,522.0	364.00	6.00	2.00	3	2		
								point116T1	135	3,612.0	8,552.0	364.00	6.00	2.00	3	2		
								point117T1	136	3,578.0	8,597.0	364.00	6.00	2.00	3	2		
								point118T1	137	3,540.0	8,619.0	364.00	6.00	2.00	3	2		
								point119T2	138	3,508.0	8,634.0	360.00	6.00	2.00	3	2		
								point120T2	139	3,462.0	8,660.0	370.00	6.00	2.00	3	2		
								point228	228	3,396.0	8,659.0	380.00	6.00	2.00	3	2		
								point229	229	3,353.0	8,619.0	360.00	6.00	2.00	3	2		
								point230	230	3,315.0	8,614.0	380.00	6.00	2.00	3	2		
								point231	231	3,278.0	8,609.0	390.00	6.00	2.00	3	2		
								point232	232	3,228.0	8,603.0	396.00	6.00	2.00	3	2		
								point233	233	3,199.0	8,600.0	400.00	6.00					
Barrier33	W	0.00	99.99	0.00			0.00	point234	234	3,105.6	6,330.0	337.00	6.00	2.00	3	2		
								point158	158	3,079.6	6,299.3	337.00	6.00	2.00	3	2		
								point159	159	3,065.6	6,293.4	337.00	6.00	2.00	3	2		
								point160	160	3,047.2	6,289.7	337.00	6.00	2.00	3	2		
								point161	161	3,032.5	6,293.4	337.00	6.00	2.00	3	2		
								point221	221	2,996.8	6,321.6	340.80	6.00	2.00	3	2		
								point222	222	2,961.0	6,349.9	344.60	6.00	2.00	3	2		
								point223	223	2,925.3	6,378.1	348.40	6.00	2.00	3	2		
								point224	224	2,889.5	6,406.4	352.20	6.00	2.00	3	2		
								point162	162	2,853.8	6,434.6	356.00	6.00					

INPUT: TERRAIN LINES

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5

INPUT: TERRAIN LINES

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa Resi Proj 041415 2050 vols

Terrain Line Name	Points			
	No.	Coordinates (ground)		
		X	Y	Z
		ft	ft	ft
Terrain Line 6	1	3,331.0	5,835.0	311.00
	5	3,409.0	6,035.0	312.00
	6	3,492.0	6,235.0	314.00
	7	3,561.0	6,435.0	317.00
	8	3,624.0	6,635.0	319.00
	9	3,677.0	6,835.0	320.00
	10	3,708.0	7,035.0	322.00
	11	3,715.0	7,235.0	322.00
	12	3,734.0	7,435.0	322.00
	13	3,767.0	7,635.0	320.00
	14	3,782.0	7,835.0	320.00
	15	3,792.0	8,035.0	320.00
	16	3,817.0	8,235.0	320.00
	17	3,841.0	8,435.0	320.00
	18	3,852.0	8,635.0	318.00
	19	3,865.0	8,835.0	317.00
	20	3,874.0	9,035.0	316.00
	21	3,852.0	9,235.0	312.00
	22	3,847.0	9,340.0	311.00
	2	3,905.0	9,999.0	310.00
Terrain Line 7	3	3,715.0	8,358.0	328.00
	23	3,712.0	8,235.0	328.00
	24	3,707.0	8,121.0	328.00
	4	3,709.0	8,044.0	328.00

<Project Name?>

RESULTS: SOUND LEVELS

<Project Name?>

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa Resi Proj 041415 2050 vols

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				Type Impact	With Barrier			
				Calculated	Crit'n	Increase over existing			Calculated LAeq1h	Noise Reduction		
						Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver 1	1	1	0.0	58.8	66	58.8	10	----	58.0	0.8	8	-7.2
Receiver 2	3	1	0.0	58.6	66	58.6	10	----	57.2	1.4	8	-6.6
Receiver 3	4	1	0.0	58.8	66	58.8	10	----	57.1	1.7	8	-6.3
Receiver 4	5	1	0.0	59.2	66	59.2	10	----	57.4	1.8	8	-6.2
Receiver 6	6	1	0.0	59.0	66	59.0	10	----	57.0	2.0	8	-6.0
Receiver 9	7	1	0.0	58.9	66	58.9	10	----	57.1	1.8	8	-6.2
Receiver 12	8	1	0.0	59.4	66	59.4	10	----	56.0	3.4	8	-4.6
Receiver 13	9	1	0.0	58.6	66	58.6	10	----	55.7	2.9	8	-5.1
Receiver 14	10	1	0.0	58.7	66	58.7	10	----	55.7	3.0	8	-5.0
Receiver 15	11	1	0.0	61.4	66	61.4	10	----	59.1	2.3	8	-5.7
Receiver 16	12	1	0.0	59.9	66	59.9	10	----	58.3	1.6	8	-6.4
Receiver 17	13	1	0.0	59.3	66	59.3	10	----	58.1	1.2	8	-6.8
Receiver 18	14	1	0.0	59.2	66	59.2	10	----	58.4	0.8	8	-7.2
Receiver 19	15	1	0.0	59.4	66	59.4	10	----	58.7	0.7	8	-7.3
Receiver 25	16	1	0.0	61.8	66	61.8	10	----	55.8	6.0	8	-2.0
Receiver 37	17	1	0.0	57.3	66	57.3	10	----	56.7	0.6	8	-7.4
Receiver 44	18	1	0.0	59.9	66	59.9	10	----	59.3	0.6	8	-7.4
Receiver 46	19	1	0.0	56.2	66	56.2	10	----	54.4	1.8	8	-6.2
Receiver 56	20	1	0.0	63.8	66	63.8	10	----	58.0	5.8	8	-2.2
Receiver 58	21	1	0.0	61.4	66	61.4	10	----	56.7	4.7	8	-3.3
Receiver 61	22	1	0.0	59.8	66	59.8	10	----	56.1	3.7	8	-4.3
Receiver 62	23	1	0.0	60.6	66	60.6	10	----	56.4	4.2	8	-3.8
Receiver 67	24	1	0.0	64.0	66	64.0	10	----	60.4	3.6	8	-4.4
Receiver 71	25	1	0.0	62.4	66	62.4	10	----	57.0	5.4	8	-2.6
Receiver 91	26	1	0.0	59.0	66	59.0	10	----	57.7	1.3	8	-6.7

RESULTS: SOUND LEVELS

<Project Name?>

Receiver 102	27	1	0.0	55.8	66	55.8	10	----	55.1	0.7	8	-7.3
Receiver 103	28	1	0.0	63.4	66	63.4	10	----	57.9	5.5	8	-2.5
Receiver 104	29	1	0.0	62.3	66	62.3	10	----	57.9	4.4	8	-3.6
Receiver 105	30	1	0.0	62.2	66	62.2	10	----	58.3	3.9	8	-4.1
Receiver 106	31	1	0.0	62.1	66	62.1	10	----	59.0	3.1	8	-4.9
Receiver 108	32	1	0.0	58.8	66	58.8	10	----	56.1	2.7	8	-5.3
Receiver 109	33	1	0.0	59.1	66	59.1	10	----	56.7	2.4	8	-5.6
Receiver 112	34	1	0.0	59.7	66	59.7	10	----	57.2	2.5	8	-5.5
Receiver 114	35	1	0.0	60.0	66	60.0	10	----	57.4	2.6	8	-5.4
Receiver 121	36	1	0.0	58.6	66	58.6	10	----	57.7	0.9	8	-7.1
Receiver 123	37	1	0.0	58.7	66	58.7	10	----	57.3	1.4	8	-6.6
Receiver 127	38	1	0.0	59.4	66	59.4	10	----	57.6	1.8	8	-6.2
Receiver 128	39	1	0.0	59.5	66	59.5	10	----	57.7	1.8	8	-6.2
Receiver 129	40	1	0.0	59.5	66	59.5	10	----	57.9	1.6	8	-6.4
Receiver130	41	1	0.0	59.1	66	59.1	10	----	58.3	0.8	8	-7.2
Park1	42	1	0.0	57.4	66	57.4	10	----	54.8	2.6	8	-5.4
Park2	43	1	0.0	57.7	66	57.7	10	----	56.0	1.7	8	-6.3
Receiver TOTLOT	44	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
Dwelling Units	# DUs	Noise Reduction										
		Min	Avg	Max								
		dB	dB	dB								
All Selected	43	0.0	2.4	6.0								
All Impacted	0	0.0	0.0	0.0								
All that meet NR Goal	0	0.0	0.0	0.0								

INPUT: ROADWAYS

<Project Name?>

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT:
RUN:

<Project Name?>
Pala Mesa 041415 2050 NoWls NoStr

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

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Old Hwy 395 SB	12.0	H18	1	3,811.0	9,999.0	311.00				Average	
		H17	9	3,800.0	9,450.0	311.00				Average	
		H16	24	3,783.0	9,160.0	314.00				Average	
		H15	10	3,776.0	9,010.0	315.00				Average	
		point14	11	3,761.0	8,697.0	318.00				Average	
		point13	12	3,758.0	8,468.0	320.00				Average	
		point12	13	3,753.0	8,226.0	321.00				Average	
		point171	171	3,744.0	8,052.5	321.00				Average	
		point11	14	3,735.0	7,879.0	321.00				Average	
		point10	15	3,721.0	7,711.0	321.00				Average	
		point9	16	3,706.0	7,537.0	322.00				Average	
		point8	17	3,689.0	7,342.0	323.00				Average	
		point?	18	3,664.0	7,061.0	322.00				Average	
		point6	19	3,646.0	6,951.0	321.00				Average	
		point5	20	3,608.0	6,770.0	320.00				Average	
		point4	21	3,553.0	6,591.0	318.00				Average	
		point3	22	3,492.0	6,414.0	316.00				Average	
Old Hwy 395 NB	12.0	H2	23	3,375.0	6,078.0	312.00				Average	
		H1	2	3,297.0	5,850.0	312.00					
		L1	3	3,311.0	5,830.0	312.00				Average	
		L2	41	3,385.0	6,065.0	312.00				Average	
		point20	42	3,503.0	6,410.0	316.00				Average	
		point21	43	3,558.0	6,567.0	318.00				Average	
		point22	44	3,623.0	6,773.0	320.00				Average	
		point23	45	3,661.0	6,955.0	321.00				Average	
		point24	46	3,675.0	7,056.0	322.00				Average	
		point25	47	3,702.0	7,351.0	323.00				Average	

INPUT: ROADWAYS

<Project Name?>

		point26	48	3,718.0	7,544.0	322.00				Average	
		point27	49	3,735.0	7,732.0	321.00				Average	
		point28	50	3,749.0	7,897.0	321.00				Average	
		point29	51	3,766.0	8,250.0	321.00				Average	
		point30	52	3,770.0	8,514.0	320.00				Average	
		point31	53	3,776.0	8,729.0	318.00				Average	
		point32	54	3,788.0	9,008.0	315.00				Average	
		point33	55	3,796.0	9,172.0	314.00				Average	
		point80	56	3,813.0	9,461.0	311.00				Average	
		L18	4	3,823.0	9,999.0	310.00					
I15 NB	48.0	N1	5	4,006.0	5,470.0	278.00				Average	
		N2	57	4,010.0	5,633.0	279.00				Average	
		N3	58	4,013.0	5,833.0	280.00				Average	
		N4	59	4,017.0	6,033.0	281.00				Average	
		N5	60	4,021.0	6,233.0	281.00				Average	
		N6	61	4,026.0	6,433.0	283.00				Average	
		N7	62	4,030.0	6,633.0	283.00				Average	
		N8	63	4,034.0	6,833.0	285.00				Average	
		N9	64	4,039.0	7,033.0	285.00				Average	
		N10	65	4,043.0	7,233.0	287.00				Average	
		N11	66	4,047.0	7,433.0	287.00				Average	
		N12	67	4,052.0	7,633.0	289.00				Average	
		N13	68	4,056.0	7,833.0	289.00				Average	
		N14	69	4,060.0	8,033.0	289.00				Average	
		N15	70	4,065.0	8,233.0	291.00				Average	
		N16	71	4,069.0	8,433.0	291.00				Average	
		N17	72	4,073.0	8,633.0	291.00				Average	
		N18	73	4,078.0	8,833.0	293.00				Average	
		N19	74	4,082.0	9,033.0	293.00				Average	
		N20	75	4,086.0	9,233.0	295.00				Average	
		N21	76	4,091.0	9,322.0	295.00				Average	
		N22	6	4,107.0	9,999.0	296.00					
I15 SB	48.0	S22	7	3,988.0	9,999.0	296.00				Average	
		S21	25	3,974.0	9,340.0	295.00				Average	
		S20	26	3,969.0	9,235.0	295.00				Average	
		S19	27	3,965.0	9,035.0	293.00				Average	
		S18	28	3,961.0	8,835.0	293.00				Average	
		S17	29	3,956.0	8,635.0	291.00				Average	
		S16	30	3,952.0	8,435.0	291.00				Average	
		S15	31	3,948.0	8,235.0	291.00				Average	

INPUT: ROADWAYS

<Project Name?>

		S14	32	3,944.0	8,035.0	289.00				Average	
		S13	33	3,939.0	7,835.0	289.00				Average	
		S12	34	3,935.0	7,635.0	289.00				Average	
		S11	35	3,931.0	7,435.0	287.00				Average	
		S10	79	3,926.0	7,235.0	287.00				Average	
		S9	80	3,922.0	7,035.0	285.00				Average	
		S8	81	3,918.0	6,835.0	285.00				Average	
		S7	36	3,913.0	6,635.0	283.00				Average	
		S6	37	3,909.0	6,435.0	283.00				Average	
		S5	38	3,905.0	6,235.0	281.00				Average	
		S4	39	3,900.0	6,035.0	281.00				Average	
		S3	77	3,896.0	5,835.0	280.00				Average	
		S2	78	3,891.0	5,635.0	279.00				Average	
		S1	40	3,884.0	5,358.0	278.00					

INPUT: TRAFFIC FOR LAeq1h Volumes

<Project Name?>

Dudek for Beazer

7 May 2015

M Greene originated by M Komula

TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa 041415 2050 NoWls NoStr

Roadway	Points											
Name	Name	No.	Segment		MTrucks		HTrucks		Buses		Motorcycles	
			Autos									
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Old Hwy 395 SB	H18	1	446	55	13	55	4	55	0	0	0	0
	H17	9	446	55	13	55	4	55	0	0	0	0
	H16	24	446	55	13	55	4	55	0	0	0	0
	H15	10	446	55	13	55	4	55	0	0	0	0
	point14	11	446	55	13	55	4	55	0	0	0	0
	point13	12	446	55	13	55	4	55	0	0	0	0
	point12	13	446	55	13	55	4	55	0	0	0	0
	point171	171	446	55	13	55	4	55	0	0	0	0
	point11	14	446	55	13	55	4	55	0	0	0	0
	point10	15	446	55	13	55	4	55	0	0	0	0
	point9	16	446	55	13	55	4	55	0	0	0	0
	point8	17	446	55	13	55	4	55	0	0	0	0
	point?	18	446	55	13	55	4	55	0	0	0	0
	point6	19	446	55	13	55	4	55	0	0	0	0
	point5	20	446	55	13	55	4	55	0	0	0	0
	point4	21	446	55	13	55	4	55	0	0	0	0
	point3	22	446	55	13	55	4	55	0	0	0	0
	H2	23	446	55	13	55	4	55	0	0	0	0
	H1	2										
Old Hwy 395 NB	L1	3	446	55	13	55	4	55	0	0	0	0
	L2	41	446	55	13	55	4	55	0	0	0	0
	point20	42	446	55	13	55	4	55	0	0	0	0
	point21	43	446	55	13	55	4	55	0	0	0	0
	point22	44	446	55	13	55	4	55	0	0	0	0
	point23	45	446	55	13	55	4	55	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

<Project Name?>

	point24	46	446	55	13	55	4	55	0	0	0	0
	point25	47	446	55	13	55	4	55	0	0	0	0
	point26	48	446	55	13	55	4	55	0	0	0	0
	point27	49	446	55	13	55	4	55	0	0	0	0
	point28	50	446	55	13	55	4	55	0	0	0	0
	point29	51	446	55	13	55	4	55	0	0	0	0
	point30	52	446	55	13	55	4	55	0	0	0	0
	point31	53	446	55	13	55	4	55	0	0	0	0
	point32	54	446	55	13	55	4	55	0	0	0	0
	point33	55	446	55	13	55	4	55	0	0	0	0
	point80	56	446	55	13	55	4	55	0	0	0	0
	L18	4										
I15 NB	N1	5	15838	65	448	65	948	65	0	0	0	0
	N2	57	15838	65	448	65	948	65	0	0	0	0
	N3	58	15838	65	448	65	948	65	0	0	0	0
	N4	59	15838	65	448	65	948	65	0	0	0	0
	N5	60	15838	65	448	65	948	65	0	0	0	0
	N6	61	15838	65	448	65	948	65	0	0	0	0
	N7	62	15838	65	448	65	948	65	0	0	0	0
	N8	63	15838	65	448	65	948	65	0	0	0	0
	N9	64	15838	65	448	65	948	65	0	0	0	0
	N10	65	15838	65	448	65	948	65	0	0	0	0
	N11	66	15838	65	448	65	948	65	0	0	0	0
	N12	67	15838	65	448	65	948	65	0	0	0	0
	N13	68	15838	65	448	65	948	65	0	0	0	0
	N14	69	15838	65	448	65	948	65	0	0	0	0
	N15	70	15838	65	448	65	948	65	0	0	0	0
	N16	71	15838	65	448	65	948	65	0	0	0	0
	N17	72	15838	65	448	65	948	65	0	0	0	0
	N18	73	15838	65	448	65	948	65	0	0	0	0
	N19	74	15838	65	448	65	948	65	0	0	0	0
	N20	75	15838	65	448	65	948	65	0	0	0	0
	N21	76	15838	65	448	65	948	65	0	0	0	0
	N22	6										
I15 SB	S22	7	13870	65	392	65	830	65	0	0	0	0
	S21	25	13870	65	392	65	830	65	0	0	0	0
	S20	26	13870	65	392	65	830	65	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Volumes

<Project Name?>

	S19	27	13870	65	392	65	830	65	0	0	0	0
	S18	28	13870	65	392	65	830	65	0	0	0	0
	S17	29	13870	65	392	65	830	65	0	0	0	0
	S16	30	13870	65	392	65	830	65	0	0	0	0
	S15	31	13870	65	392	65	830	65	0	0	0	0
	S14	32	13870	65	392	65	830	65	0	0	0	0
	S13	33	13870	65	392	65	830	65	0	0	0	0
	S12	34	13870	65	392	65	830	65	0	0	0	0
	S11	35	13870	65	392	65	830	65	0	0	0	0
	S10	79	13870	65	392	65	830	65	0	0	0	0
	S9	80	13870	65	392	65	830	65	0	0	0	0
	S8	81	13870	65	392	65	830	65	0	0	0	0
	S7	36	13870	65	392	65	830	65	0	0	0	0
	S6	37	13870	65	392	65	830	65	0	0	0	0
	S5	38	13870	65	392	65	830	65	0	0	0	0
	S4	39	13870	65	392	65	830	65	0	0	0	0
	S3	77	13870	65	392	65	830	65	0	0	0	0
	S2	78	13870	65	392	65	830	65	0	0	0	0
	S1	40										

INPUT: RECEIVERS

<Project Name?>

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5

INPUT: RECEIVERS

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa 041415 2050 NoWls NoStr

Receiver

Name	No.	#DUs	Coordinates (ground)			Height above Ground	Input Sound Levels and Criteria			NR Goal	Active in Calc.
			X	Y	Z		Existing LAeq1h	Impact Criteria LAeq1h	Sub'l		
			ft	ft	ft		dBA	dBA	dB	dB	
Receiver 19	15	1	2,865.0	6,445.0	356.00	5.00	0.00	66	10.0	8.0	Y
Receiver 44	18	1	3,062.0	7,253.0	371.00	5.00	0.00	66	10.0	8.0	Y
Receiver166	166	1	3,476.3	8,238.3	356.40	5.00	0.00	66	10.0	8.0	Y
Receiver182	182	1	3,485.3	7,868.8	351.20	5.00	0.00	66	10.0	8.0	Y
Receiver188	188	1	3,325.5	6,114.5	316.67	5.00	0.00	66	10.0	8.0	Y
Receiver190	190	1	3,434.8	6,430.6	320.08	5.00	0.00	66	10.0	8.0	Y
Receiver192	192	1	3,447.0	8,542.9	359.75	5.00	0.00	66	10.0	8.0	Y
Receiver202	202	1	3,605.4	6,035.0	299.60	5.00	0.00	66	10.0	8.0	Y
Receiver221	221	1	3,584.2	6,435.0	314.73	5.00	0.00	66	10.0	8.0	Y
Receiver276	276	1	3,617.6	6,958.9	324.32	5.00	0.00	66	10.0	8.0	Y
Receiver285	285	1	3,656.8	7,354.9	326.52	5.00	0.00	66	10.0	8.0	Y
Receiver300	300	1	3,685.1	7,877.0	327.04	5.00	0.00	66	10.0	8.0	Y
Receiver314	314	1	3,742.0	8,462.4	321.80	5.00	0.00	66	10.0	8.0	Y
Receiver363	363	1	3,204.6	7,879.8	376.40	5.00	0.00	66	10.0	8.0	Y
Receiver373	373	1	3,272.6	8,366.6	376.80	5.00	0.00	66	10.0	8.0	Y
Receiver379	379	1	2,955.8	6,735.2	361.40	5.00	0.00	66	10.0	8.0	Y
Receiver396	396	1	3,113.3	7,633.2	375.50	5.00	0.00	66	10.0	8.0	Y

INPUT: TERRAIN LINES

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5

INPUT: TERRAIN LINES

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa 041415 2050 NoWls NoStr

Terrain Line Name	Points			
	No.	Coordinates (ground)		
		X	Y	Z
		ft	ft	ft
Terrain Line 6	1	3,331.0	5,835.0	311.00
	5	3,409.0	6,035.0	312.00
	6	3,492.0	6,235.0	314.00
	7	3,561.0	6,435.0	317.00
	8	3,624.0	6,635.0	319.00
	9	3,677.0	6,835.0	320.00
	10	3,708.0	7,035.0	322.00
	11	3,715.0	7,235.0	322.00
	12	3,734.0	7,435.0	322.00
	13	3,767.0	7,635.0	320.00
	14	3,782.0	7,835.0	320.00
	15	3,792.0	8,035.0	320.00
	16	3,817.0	8,235.0	320.00
	17	3,841.0	8,435.0	320.00
	18	3,852.0	8,635.0	318.00
	19	3,865.0	8,835.0	317.00
	20	3,874.0	9,035.0	316.00
	21	3,852.0	9,235.0	312.00
	22	3,847.0	9,340.0	311.00
	2	3,905.0	9,999.0	310.00
Terrain Line 7	3	3,715.0	8,358.0	328.00
	23	3,712.0	8,235.0	328.00
	24	3,707.0	8,121.0	328.00
	4	3,709.0	8,044.0	328.00
Terrain Line4	25	3,105.6	6,330.0	337.00
	37	3,079.6	6,299.3	337.00

<Project Name?>

INPUT: TERRAIN LINES

<Project Name?>

	38	3,065.6	6,293.4	337.00
	39	3,047.2	6,289.7	337.00
	40	3,032.5	6,293.4	337.00
	41	2,996.8	6,321.6	340.80
	42	2,961.0	6,349.9	344.60
	43	2,925.3	6,378.1	348.40
	44	2,889.5	6,406.4	352.20
	26	2,853.8	6,434.6	356.00
Terrain Line7	31	3,089.0	6,508.0	345.00
	71	3,142.0	6,583.0	345.00
	72	3,140.0	6,597.0	348.00
	73	3,148.1	6,622.0	355.00
	74	3,178.7	6,675.2	355.00
	75	3,207.0	6,744.0	352.00
	76	3,230.0	6,799.0	352.00
	77	3,235.0	6,854.0	352.00
	78	3,237.0	6,860.0	352.00
	79	3,256.0	6,916.0	352.00
	80	3,259.0	6,921.0	349.00
	81	3,276.0	6,983.0	349.00
	82	3,278.0	6,987.0	348.00
	83	3,292.0	7,046.0	348.00
	84	3,304.0	7,112.0	345.00
	85	3,313.0	7,177.0	345.00
	32	3,268.0	7,179.0	345.00
Terrain Line9	35	3,396.0	8,179.0	370.00
	101	3,406.0	8,361.0	370.00
	102	3,388.0	8,368.0	376.00
	103	3,362.0	8,416.0	376.00
	104	3,353.0	8,418.0	378.00
	105	3,349.0	8,517.0	378.00
	106	3,340.0	8,536.0	380.00
	36	3,304.0	8,600.0	380.00
Terrain Line11	108	3,290.0	7,293.0	349.00
	109	3,332.0	7,303.0	349.00
	110	3,339.0	7,352.0	349.00
	111	3,334.0	7,358.0	351.00

INPUT: TERRAIN LINES

	112	3,342.0	7,417.0	351.00
	113	3,338.0	7,557.0	362.00
	114	3,344.0	7,618.0	362.00
	115	3,336.0	7,625.0	366.00
	116	3,336.0	7,682.0	366.00
	117	3,328.0	7,689.0	370.00
	118	3,325.0	7,741.0	370.00
	119	3,289.0	7,857.0	376.00
	120	3,283.0	7,861.0	377.00
	122	3,282.0	7,942.0	377.00
	121	3,229.0	8,038.0	378.00

<Project Name?>

RESULTS: SOUND LEVELS

<Project Name?>

Dudek for Beazer
M Greene originated by M Komula

7 May 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

<Project Name?>

RUN:

Pala Mesa 041415 2050 NoWls NoStr

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			Increase over existing			Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Calculated LAeq1h	Noise Reduction					
									Calculated		Goal	Calculated minus Goal		
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB		
Receiver 19	15	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0		
Receiver 44	18	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0		
Receiver166	166	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0		
Receiver182	182	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0		
Receiver188	188	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0		
Receiver190	190	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0		
Receiver192	192	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0		
Receiver202	202	1	0.0	75.4	66	75.4	10	Snd Lvl	75.4	0.0	8	-8.0		
Receiver221	221	1	0.0	75.6	66	75.6	10	Snd Lvl	75.6	0.0	8	-8.0		
Receiver276	276	1	0.0	74.5	66	74.5	10	Snd Lvl	74.5	0.0	8	-8.0		
Receiver285	285	1	0.0	75.2	66	75.2	10	Snd Lvl	75.2	0.0	8	-8.0		
Receiver300	300	1	0.0	74.8	66	74.8	10	Snd Lvl	74.8	0.0	8	-8.0		
Receiver314	314	1	0.0	75.4	66	75.4	10	Snd Lvl	75.4	0.0	8	-8.0		
Receiver363	363	1	0.0	60.4	66	60.4	10	----	60.4	0.0	8	-8.0		
Receiver373	373	1	0.0	60.2	66	60.2	10	----	60.2	0.0	8	-8.0		
Receiver379	379	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0		
Receiver396	396	1	0.0	60.1	66	60.1	10	----	60.1	0.0	8	-8.0		

Dwelling Units

	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	17	0.0	0.0	0.0
All Impacted	11	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0