March 16, 2023

Ms. Tracy Zinn
T&B Planning, Inc.
3200 El Camino Real, Suite 100
Irvine, CA 92602

SUBJECT: ALDER AND MERRILL NOISE ASSESSMENT

Dear Ms. Tracy Zinn:

Urban Crossroads, Inc. is pleased to provide the following Noise Assessment for the Alder and Merrill (**Project**) which is located north of Merrill Avenue, between Alder Avenue and Laurel Avenue in the City of Fontana.

PROJECT OVERVIEW

The Project consists of a proposed General Plan Amendment (**GPA**) and a Zone Change (**ZC**) for a 6.4-acre property that is in the City of Fontana north of Merrill Avenue, between Alder Avenue and Laurel Avenue, and south of Citron Avenue. The GPA would change the General Plan land use designation of the Project site from Single Family Residential (**R-SF**) to Multifamily Medium High-Density Residential (**R-MFMH**) and the zoning of the Project site from Single Family Residential (**R-1**) to Multifamily Medium/High Density Residential (**R-4**). The existing General Plan land use and zoning and the proposed GPA and ZC are shown in Attachment A. The increased unit count allowance would increase from a maximum of 32 residential units (6.4 acres x 5.0 units/acre = 32 units) to 249 residential units (6.4 acres x 39 units/acre = 249 units), for a net increase of 217 units assuming maximum development potential under the existing and proposed designations. No development project is currently proposed, and no physical disturbance of the Project site is currently proposed. Only the proposed change to the underlying land use has been evaluated in this Noise Assessment.

OFF-SITE TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to describe the off-site traffic noise level increase associated with the Project. Consistent with City of Fontana *Land Use Compatibility Criteria*, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (1) This methodology is commonly used to describe the off-site traffic noise levels throughout California and is consistent with the City of Fontana General Plan Noise Element.

The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (2) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (3)

OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. The ADT volumes used in this study area presented on Table 2 are based on existing traffic volumes from the *Foothill/Maple & Arrow/Laurel Residential Zone Change Focused Traffic Impact Analysis* in combination with the Project trip estimates from the *Alder and Merrill Trip Generation Assessment* prepared by Urban Crossroads, Inc. The change in trip generation between the current General Plan (R-SF): Single-Family land use and the Proposed General Plan (R-MFMH): Multifamily is anticipated to generate a net total increase of 828 trips per day. Table 3 provides the time of day (daytime, evening, and nighttime) vehicle splits. Table 4 shows the traffic flow by vehicle type (vehicle mix).

OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site traffic CNEL noise level impacts associated with the Project, noise contour calculations were developed to assess the Project's incremental 24-hour dBA CNEL traffic-related noise levels at land uses adjacent to roadways conveying Project traffic. Noise contours represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Table 5 presents a summary of the exterior dBA CNEL traffic noise levels. Appendix B includes the dBA CNEL traffic noise level calculations.

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact*

significant. (4) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged.

THRESHOLDS OF SIGNIFICANCE

The Federal Interagency Committee on Noise (FICON) (5) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders a noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (4) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance at noise sensitive receiver locations are consistent with guidance provided by both the Federal Highway Administration (6 p. 9) and Caltrans (7 p. 2_48).

TRAFFIC NOISE LEVEL INCREASES

Table 5 shows that the current General Plan (R-SF): Single-Family land use will produce an exterior CNEL noise level of 70.1 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 5 shows the Proposed General Plan (R-MFMH): Multi-family will produce

an exterior CNEL noise level of 70.3 dBA CNEL. The noise assessment demonstrates that the proposed Project GPA and ZC will generate an off-site traffic noise level increase of 0.2 dBA CNEL due to maximum development potential of 217 units. Based on the FICON significance criteria for off-site traffic noise, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to the Project-related traffic.

CONCLUSIONS

Based on the FICON significance criteria for off-site traffic noise, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to the Project-related traffic. If you have any questions, please contact me directly at (949) 584-3148.

Respectfully submitted,

URBAN CROSSROADS, INC.

Bill Lawson, P.E., INCE
Principal

REFERENCES

1. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
2. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
3. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
4. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
5. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
6. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
7. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.

TABLE 1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Classification[2]	Distance from Centerline to Receiving Land Use (Feet)[2]	Vehicle Speed (mph)
1	Alder Ave.	n/o Merrill Ave.	Sensitive	Secondary Highway	46'	40

[1] City of Fontana General Plan Land Use Map.
[2] City of Fontana General Plan Circulation Element.
[3] Distance to receiving land use is based upon the right-of-way distances for each roadway classification provided in the Circulation Element.

TABLE 2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]	
			Current General Plan (R-SF)[1]	Proposed General Plan (R-MFMH)[2]
1	Alder Ave.	n/o Merrill Ave.	14,538	15,366

[1] Foothill/Maple & Arrow/Laurel Residential Zone Change Focused Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Alder & Merrill Trip Generation Assessment, Urban Crossroads, Inc.

TABLE 3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

Typical Southern California vehicle mix. Vehicle mix percentage values rounded to the nearest one-hundredth.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 4: VEHICLE MIX

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	95.52%	2.33%	2.15%	100.00%

Based on an existing PM peak hour vehicle count taken at Citrus Avenue and Jurupa Avenue (Goodman Industrial Park Fontana III Traffic Impact Analysis.). Vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 5: PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Noise Level Increase Significance Criteria[2]		Significant Impact?
				No Project	With Project	Project Increase	Criteria	Exceeded?	
1	Alder Ave.	n/o Merrill Ave.	Sensitive	70.1	70.3	0.2	1.5	No	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an off-site transportation related noise level increase exceeding the FICON significance criteria?

ATTACHMENT A

PROPOSED GENERAL PLAN AMENDMENT

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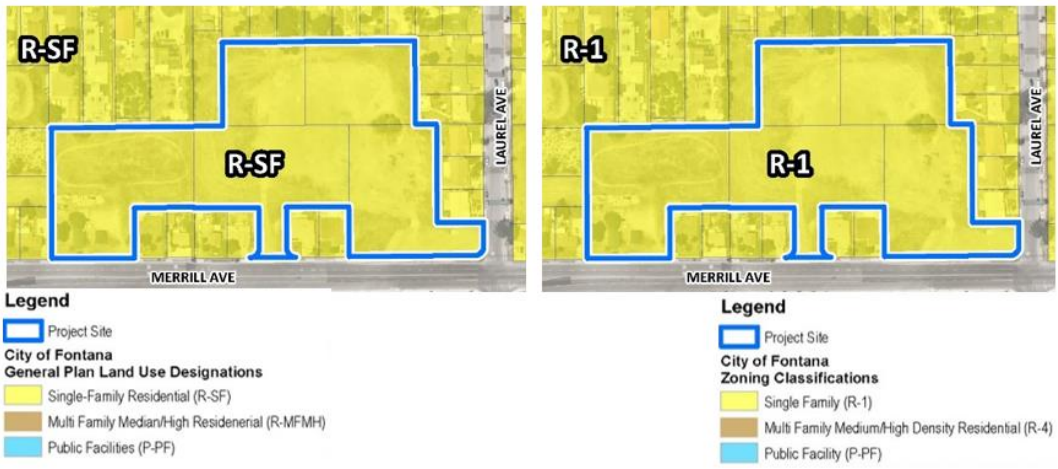
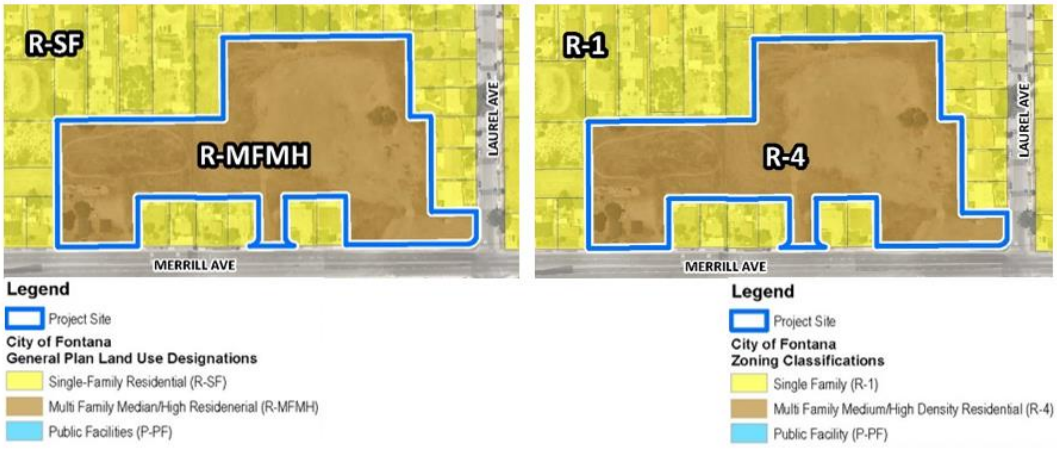
A-1: EXISTING GENERAL PLAN LAND USE AND ZONING



A-2: PROPOSED CHANGE OF ZONE



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ATTACHMENT B

OFF-SITE TRAFFIC NOISE CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Alder Ave.
Road Segment: n/o Merrill Ave.

Project Name: Alder & Merrill
Job Number: 15283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,538 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,454 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	95.52%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.10	1.64	-1.20	*-4.63*	0.000	0.000
Medium Trucks:	77.72	-16.03	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-16.38	1.67	-1.20	*-5.47*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.0	65.2	63.4	57.3	66.0	66.6
Medium Trucks:	62.2	60.7	54.3	52.8	61.2	61.4
Heavy Trucks:	67.1	65.7	56.6	57.9	66.2	66.4
Vehicle Noise:	70.7	69.1	64.6	61.3	69.8	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	44	96	206	443
CNEL:	47	101	217	468

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Alder Ave.
Road Segment: n/o Merrill Ave.

Project Name: Alder & Merrill
Job Number: 15283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,366 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,537 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	95.52%
Medium Trucks:	84.8%	4.9%	10.3%	2.33%
Heavy Trucks:	86.5%	2.7%	10.8%	2.15%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	0.34	1.64	-1.20	*-4.63*	0.000	0.000
Medium Trucks:	77.72	-15.79	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-16.14	1.67	-1.20	*-5.47*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.3	65.4	63.6	57.6	66.2	66.8
Medium Trucks:	62.4	60.9	54.5	53.0	61.5	61.7
Heavy Trucks:	67.3	65.9	56.9	58.1	66.5	66.6
Vehicle Noise:	71.0	69.3	64.9	61.5	70.0	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	46	99	214	460
CNEL:	49	105	225	485