

MEMORANDUM

DATE: December 11, 2007

TO: Wendy Carter, Sacramento Mutual Housing Association

FROM: Phil Ault, LSA Associates, Inc.

SUBJECT: YMHA and SMHA Project, Davis, CA

This memo addresses the noise impacts associated with changes to the proposed residential project entrance location. Noise impacts associated with project implementation were previously detailed in the Acoustical Analysis prepared by LSA Associates, Inc. dated December 2007. In this previous report, the entrance to the residential portion of the project was stated to be from Drummond Avenue. It has since been identified that such an entrance would not be feasible due to a major utility issue at that location. The proposed entrance has, therefore, since been changed to Cowell Boulevard. This memo identifies the impacts associated with the change of the residential entrance to Cowell Boulevard, and, where necessary, mitigation measures are recommended to reduce noise impacts to a less-than-significant level.

Based on the traffic noise modeling performed for the previous report, the closest outdoor sensitive receptor areas on the residential parcels would be exposed to future traffic noise levels from I-80 of up to 73.9 dBA CNEL. The model inputs included a minimum setback of 260 feet from the centerline of I-80 and a K-factor (calibration) of -1.5 dBA based on noise monitoring measurements. The previous analysis recommended that a densely landscaped berm at least 4 feet in height above the finished pad elevation (with an effective height of 5 feet) and extending the length of the property should be constructed on the northern property boundary of the residential parcels adjacent to Cowell Boulevard. The analysis determined that such a sound barrier would reduce the I-80 traffic noise levels at the residential receptors to approximately 66.0 dBA CNEL, within the City's conditionally acceptable range (60 dBA to 70 dBA CNEL) for new residential development. Without such a berm, the residential parcels would be exposed to traffic noise levels in the normally unacceptable range (70 dBA to 75 dBA CNEL) for new residential development according to the City's standards¹ for acceptable exterior noise levels by land use.

The proposed entrance location from Cowell Boulevard would render the above recommended sound barrier ineffective; leaving projected future I-80 traffic noise levels at 73.9 dBA CNEL at the nearest outdoor sensitive receptor areas on the residential parcels. It is understood that the provision of a berm of an effective height of 5 feet could not be feasibly located between the Cowell Boulevard entrance and the residences since berms should be constructed at a recommended 3:1 ratio (i.e., a 15 foot wide base is recommended for a berm with an effective height of 5 feet).

According to the City's standards, new construction or development should be discouraged in areas exposed to noise levels within the normally unacceptable range. However, the standards further state that if new construction or development does proceed, a detailed analysis of the noise reduction

¹ Davis, City of, 2001. *City of Davis General Plan, Chapter 21: Noise*. May.

requirements must be conducted and needed noise attenuation features shall be included in the construction or development. Therefore, mitigation measures are recommended in order to maintain the City's interior noise standard for residences of 45 dBA CNEL.

Based on the EPA's Protective Noise Levels (EPA 550/9-79-100, November 1978), with a combination of walls, doors, and windows, standard construction for northern California residential buildings would provide more than 25 dBA in exterior to interior noise reduction with windows closed and 15 dBA or more with windows open. With windows open, residential units with direct exposure to I-80 would not meet the City's residential interior noise standard of 45 dBA CNEL (i.e., $73.9 \text{ dBA} - 15 \text{ dBA} = 58.9 \text{ dBA}$). Therefore, an alternate form of ventilation, such as an air conditioning system would be required for all buildings on the residential parcels with façades exposed to I-80 to ensure that windows can remain closed for a prolonged period of time. However, even with windows closed units directly exposed to I-80 traffic noise levels on the project site would not meet the City's residential interior noise standard of 45 dBA (i.e., $73.9 \text{ dBA} - 25 \text{ dBA} = 48.9 \text{ dBA}$). Therefore, in addition to an alternate form of ventilation, windows with a minimum STC-32 rating are recommended for all residential units with façades exposed to I-80.

It is recommended, therefore, that for the residential parcels, the following measures be incorporated as design features of the proposed project:

- (1) An alternate form of ventilation, such as an air conditioning system, should be required for all residences directly exposed to I-80 to ensure that windows can remain closed for a prolonged period of time;
- (2) A minimum setback of 260 feet from the centerline of I-80 should be required of all noise sensitive land uses on the residential parcels;
- (3) Windows with a minimum STC-32 rating should be required for all residential units with façades directly exposed to I-80; and
- (4) All outdoor active use areas (including playgrounds, patios, and balconies) should be located on the south side of buildings on the residential parcels.

Implementation of these recommendation measures would effectively reduce traffic noise impacts on the residential parcels to less-than-significant levels and would effectively meet the City's interior noise standard for new residential development.