

Ebb Tide Residential Project Noise Assessment – DRAFT

**1560 Placentia Avenue
Newport Beach, California 92660**

**Prepared for
City of Newport Beach**

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**Prepared by
Theodore C. Lindberg, INCE Bd. Cert.**

AECOM Project No. 60420554



999 Town and County Road, Suite 300
Orange, CA 92868

Introduction

The Ebb Tide Planned Community residential project is located at 1560 Placentia Avenue in the City of Newport Beach. The project site is located within an existing commercial-industrial area and encompasses 4.7 acres generally bound by Placentia Avenue to the west, commercial industrial uses to the north and east, and multi-family and manufactured housing uses to the south. This project calls for the development of 83 single-family condominium dwelling units.

The purpose of this analysis is to determine the existing ambient noise environment due to the existing activities associated with the commercial and industrial uses which are located adjacent to the project site. These existing noise sources could impact the noise sensitive land uses proposed within the project. The noise levels associated with the existing environment are projected onto the project site and the resulting levels are compared to the noise standards found within the City of Newport Beach Noise Element of the General Plan and Noise Ordinance, and the impacts are determined.

Noise Standards

Community noise exposure metrics (e.g. Day-Night Level (DNL), Community Noise Equivalent Level (CNEL)) take into account the impacts of noise during the hours of the day and night when people are more sensitive to noise. These noise metrics are reported in decibels (dB) where noise that takes place at night is more heavily “weighted” than noise which takes place during daytime hours. These weighted and non-weighted noise levels are then averaged over a 24-hour period in order to report a single noise level value, typically called a noise exposure level. Since these levels are calculated or estimated for a period of at least 24-hours, it can be difficult to detect a change in the noise level from one day to the next.

The Noise Ordinance for the City of Newport Beach specifies limits on exterior noise exposure for various land uses. Those limits are listed within their Noise and Land Use Compatibility Matrix found in Table 2 of the Noise Element of the General Plan. A copy of this table is presented in Figure 1. Within this matrix, for residential land uses, noise exposure levels in the range of 60 dB to 65 dB CNEL are considered to be Normally Compatible while noise levels in the range of 65 dB to 70 dB CNEL are considered to be Normally Incompatible.

The Noise Element states the following :

“The 60 dB CNEL contour defines the Noise Referral Zone. This is the noise level for which noise considerations should be included when making land use policy decisions that effect existing and proposed noise-sensitive developments. The 65 dB CNEL contour describes the area for which new noise sensitive developments will be permitted only if appropriate mitigation measures are included such that the standards contained in this Element are achieved.”

Table N2 Land Use Noise Compatibility Matrix								
Land Use Categories		Community Noise Equivalent Level (CNEL)						
Categories	Uses	<55	55-60	60-65	65-70	70-75	75-80	>80
Residential	Single Family, Two Family, Multiple Family	A	A	B	C	C	D	D
Residential	Mixed Use	A	A	A	C	C	C	D
Residential	Mobile Home	A	A	B	C	C	D	D
Commercial Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	B	B	C
Commercial Industrial Institutional	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
Commercial Recreational Institutional Civic Center	Amphitheatre, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial Recreation	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
Commercial General, Special Industrial, Institutional	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional	Hospital, Church, Library, Schools' Classroom	A	A	B	C	C	D	D
Open Space	Parks	A	A	A	B	C	D	D
Open Space	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agriculture	Agriculture	A	A	A	A	A	A	A
SOURCE: Newport Beach, 2006 Zone A: Clearly Compatible—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements. Zone B: Normally Compatible—New construction or development should be undertaken only after detailed analysis of the noise reduction requirements and are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice. Zone C: Normally Incompatible—New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design. Zone D: Clearly Incompatible—New construction or development should generally not be undertaken.								

Figure 1. City of Newport Beach Land Use and Noise Compatibility Matrix

Policy N 1.1, Noise Compatibility of New Development states:

“Require that all proposed projects are compatible with the noise environment through use of Table N2, and enforce the interior and exterior noise standards shown in Table N3. (Imp 2.1)”

Policy N 1.2, Noise Exposure Verification for New Development states:

Applicants for proposed projects that require environmental review and are, located in areas projected to be exposed to a CNEL of 60 dBA and higher, as shown on Figure N4, Figure N5, and Figure N6 may conduct a field survey, noise measurements or other modeling in a manner acceptable to the City to provide evidence that the depicted noise contours do not adequately account for local noise exposure circumstances due to such factors as, topography, variation in traffic speeds, and other applicable conditions. These findings shall be used to determine the level of exterior or interior, noise attenuation needed to attain an acceptable noise exposure level and the feasibility of such mitigation when other planning considerations are taken into account. (Imp 2.1)

Policy N 2.1, New Development states:

“Require that proposed noise-sensitive uses in areas of 60 dBA and greater, as determined the analyses stipulated by Policy N1.1, demonstrate that they meet interior and exterior noise levels. (Imp 2.1)”

From these policies, it is concluded that the City of Newport Beach has adopted an exterior noise standard of 65 dB CNEL for residential land uses. The City has also adopted an interior noise standard of 45 dB CNEL for noise sensitive residential land uses. These are the noise standards that are applied to this project. The project involves the construction or placement of new residential properties that would be subjected to mobile noise sources. Consequently, noise regulations pertaining to residential projects would apply to this project land uses.

When noise levels are compared side by side in a quiet environment, it is easier to detect a change in level. Under these conditions, changes as small as 1 dB have been detected, a change of 3 dB is somewhat noticeable, a change of 5 dB is very noticeable, and a change of 10 dB is perceived as a doubling of the sound level. In comparing environmental noise exposure levels, it generally requires a 3 dB increase in noise level before a change is detected. Therefore, it has been generally adopted that a change of 3 dB in community noise exposure levels constitutes a significant change. The City of Newport Beach has adopted a sliding scale with respect to the increase in noise level that constitutes a significant impact. If the existing noise exposure level is 55 dB CNEL, a significant noise level impact occurs when the overall noise level is increased by 3 dBA. When the existing noise exposure level reaches 65 dB CNEL, then a significant noise level impact occurs when the overall noise level is increased by only 1 dBA. This is described in the following policy.

Policy N 1.8, Significant Noise Impacts states:

Require the employment of noise mitigation measures for existing sensitive uses when a significant noise impact is identified. A significant noise impact occurs when there is an increase in the ambient CNEL produced by new development impacting existing sensitive uses. The CNEL increase is shown in the table below. (Imp 2.1, 7.1)

CNEL (dBA)	dBA increase
55	3
60	2
65	1
70	1
Over 75	Any increase is considered significant

The City of Newport Beach has also adopted Community Noise Control policies and standards as part of its Municipal Code in order to limit unnecessary, excessive and annoying noise in the City. These policies contain the noise standards that pertain to non-transportation noise sources, and are taken from Table N3 of the Noise Element. These standards are presented below in Figure 2.

Table N3 Noise Standards					
Land Use Categories		Allowable Noise Levels (dBA)			
Categories	Uses	Interior ^{a,b}		Exterior ^{a,b}	
		Interior Noise Level (Leq) 7am to 10pm	Interior Noise Level (Leq) 10 pm to 7 am	Exterior Noise Level (Leq) 7am to 10pm	Exterior Noise Level (Leq) 10 pm to 7 am
Residential	Single Family, Two Family, Multiple Family (Zone I)	45	40	55	50
	Residential Portions of Mixed Use Developments (Zone III)	45	40	60	50
Commercial Industrial	Commercial (Zone II)	N/A	N/A	65	60
	Industrial or Manufacturing (Zone IV)	N/A	N/A	70	70
Institutional	Schools, Day Care Centers, Churches, Libraries, Museums, Health Care Institutions (Zone I)	45	40	55	50

SOURCE: EIP Associates, 2006

^a If the ambient noise level exceeds the resulting standard, the ambient shall be the standard.

^b It shall be unlawful for any person at any location within the incorporated area of the City to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such a person which causes the noise level when measured on any other property, to exceed either of the following:

- The noise standard for the applicable zone for any fifteen-minute period;
- A maximum instantaneous noise level equal to the value of the noise standard plus twenty dBA for any period of time (measured using A-weighted slow response).
- In the event the ambient noise level exceeds the noise standard, the noise standard applicable to said category shall be increased to reflect the maximum ambient noise level.
- The noise standard for the residential portions of the residential property falling within one hundred feet of a commercial property, if the intruding noise originates from that commercial property.
- If the measurement location is on a boundary between two different noise zones, the lower noise level standard applicable to the noise zone shall apply.

Figure 2. City of Newport Beach Land Use and Noise Standards

Existing Conditions

A noise measurement survey was conducted at the project site on April 3, 2015 in order to determine the existing ambient environment due to the surrounding land uses. There were a total of three noise measurements taken at the site, and each noise measurement was conducted for at least 30 minutes.. These monitoring locations are shown as Sites ST-1, ST-2 and ST-3, respectively, on Figure 3. The results of the noise measurement survey are presented in Table 1.

The first short-term noise measurement was set up along the west property line adjacent to Placentia Ave. The measured noise level at ST-1 was 68.6 dBA Leq. Ambient noise at this location was dominated by traffic on Placentia Avenue. There was no significant noise events recorded during this measurement.

The second short-term noise measurement site was along the north property line. The facilities at this location were fairly quiet with no distinguishable noise sources of concern. The measured noise level at ST-2 was 50.1 dBA Leq, which is below the daytime standard of 55 dBA Leq. There is not expected to be any impact from commercial or industrial activities north of the project site.

The third short-term noise measurement site was as the southeast corner of the project site. The environment at this location was fairly quiet with no distinguishable noise sources of concern. The measured noise level at ST-3 was 48.9 dBA Leq, which is below the daytime standard of 55 dBA Leq. There is not expected to be any impact from commercial or industrial activities southeast of the project site.

Table 1. Noise Measurement Survey Results

Site	Leq	Lmax	L ₁₀	L ₅₀	L ₉₀	Lmin
ST-1	68.6	80.0	72.5	66.1	56.7	48.5
ST-2	50.1	66.5	51.5	47.5	45.3	42.1
ST-3	48.9	64.4	49.7	46.3	44.4	42.8

Traffic Noise

A traffic analysis was conducted for this project which contains the existing and future traffic volumes for the roadways in the area of the project site. This report, “*Traffic Impact Analysis, Ebb Tide Residential Project, City of Newport Beach*” was prepared by DKS Associates, Project No. 14078-001, and dated April 17, 1995. Using this analysis and data collected from the Orange County Transportation Agency traffic flow map, the existing, future, and project related average daily traffic (ADT) volumes were obtained for the three roadway located nearest to the project site. These roadways include: Placentia Avenue, which runs along the east side of the project and provides vehicular access to the site; 16th Street, which runs east and west approximately one block north of the project; and Superior Avenue which runs northeast and southwest near the southeast corner of the project.

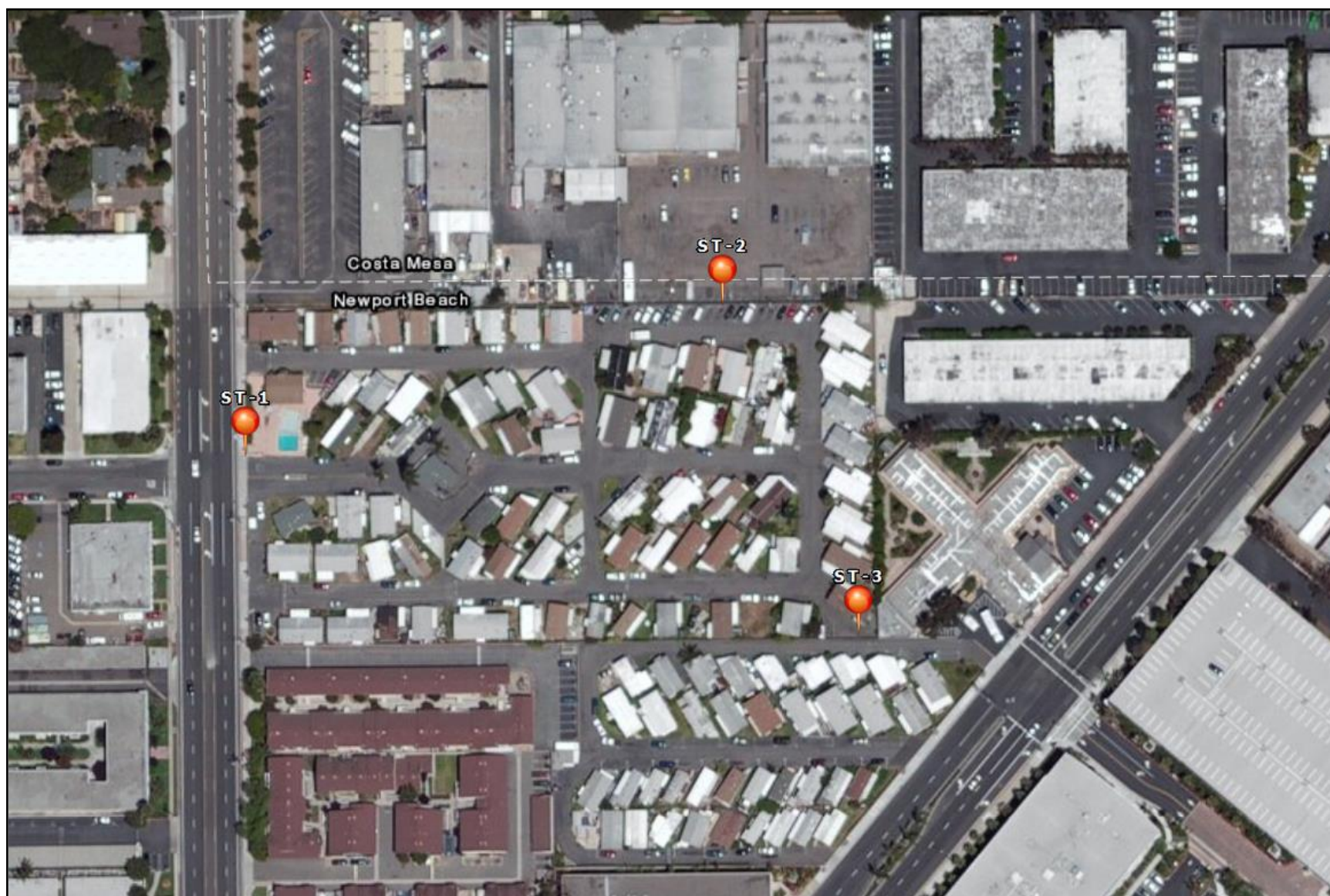


Figure 3. Noise Measurement Locations

The existing, future, and project related ADT volumes for these three roadways is presented in Table 2. The future year for the project, according to the traffic analysis, is 2019. The growth rate of traffic on the streets adjacent to the project is expected to be approximately one-percent annually. The future traffic volumes for the year 2019 were calculated based on this growth rate. The project is expected to generate a total of 426 new trips above the levels that exist today. According to the traffic analysis, of those trips generated by the project, all of them are expected to use Placentia Avenue, forty-percent of them are expected to use 16th Street, and twenty-percent of them are expected to use Superior Avenue.

Table 2. Existing, Future, and Project ADT Volumes

Street	Existing (2015) ADT	Future (2019) No Project ADT	Project ADT	Future (2019) With Project ADT
Placentia Ave. <i>s/o 16th Street</i>	13,261	13,800	426	14,226
16th Street <i>e/o Placentia</i>	3,240	3,372	170	3,542
Superior Ave. <i>n/o 15th Street</i>	21,732	22,614	85	22,700

The increase in noise level along these roadways was calculated in order to determine the potential for impact due to project related traffic. The results of this analysis are presented in Table 3. The analysis compared the noise level change between the Future With Project traffic volume and the Future No Project traffic volume. In this case, the project is expected to generate a maximum increase in noise of 0.2 dB for any of the roadways in the project area.

The next portion of the analysis was to compare the Future With Project traffic volumes to the Existing traffic volumes. This would determine the level of increase in noise due to both increases in project related traffic and changes in traffic due to normal growth in the area. The analysis shows that there would be a maximum increase in noise of 0.4 dB for any of the roadways in the project area due to the combination of growth in the area and the project. Since both of these projected increases in noise level will be less than the most restrictive standard stated in the ordinance of 1 dB, there will be no impact due to the project on the land uses in the vicinity of the project.

Table 3. Increases in Project Related Traffic Noise

Street	Existing (2015) ADT	Future (2019) No Project ADT	Project ADT	Future (2019) With Project ADT	Future With Project vs. Future No Project Increase (dBA)	Future With Project vs. Existing Increase (dBA)
Placentia Ave. s/o 16th Street	13,261	13,800	426	14,226	0.1	0.3
16th Street e/o Placentia	3,240	3,372	170	3,542	0.2	0.4
Superior Ave. n/o 15th Street	21,732	22,614	85	22,700	0.0	0.2

The noise level from Placentia Avenue was calculated to determine the future noise exposure level of the roadway on to the project itself. The Future With Project traffic volume was used along with a speed limit of 40 mph which is the current posted limit. The time distributions and truck mix percentages used in calculating the noise exposure levels for the adjacent arterials is presented in Table 4. This data was compiled from traffic mixes throughout Orange County and are considered typical for arterials roadways, in the Southern California area.

Table 4. Traffic Mix in Percent of ADT by Vehicle Type

Vehicle Type	Day	Evening	Night
Automobile	75.51%	12.57%	9.34%
Medium Truck	1.56%	0.09%	0.19%
Heavy Truck	0.64%	0.02%	0.08%

The noise exposure from Placentia Ave. was calculated and the results are presented in Table 5 as distances to the 60 dB, 65 dB and 70 dB CNEL noise exposure contours. The distance values listed represent the distance as measured from the centerline of the roadway. The noise values were then calculated to the nearest residential dwelling in the project site to determine if there would be any impacts.

Table 5. Distance to Noise Contours for Future Conditions

Roadway	Distance to CNEL Contour (ft.)		
	70 dB	65 dB	60 dB
Placentia Ave.	31	66	142

According to the latest project site plan, the outdoor living areas of the dwelling units to be located nearest to Placentia Ave. would be located approximately 48 feet from the centerline of the roadway. At that distance, the projected exterior noise level would be about 67 dB CNEL. This level would exceed the exterior noise standard for private outdoor living areas, therefore noise mitigation measures would be required.

The building faces of the dwelling units to be located nearest to Placentia Ave. would be located approximately 58 feet from the centerline of the roadway. At this distance, the projected exterior noise level would be about 66 dB CNEL.

Mitigation

In order to protect the exterior living spaces of the dwelling units to be located adjacent to Placentia Ave. from excessive noise, noise barrier would need to be constructed. The noise mitigation requirement applies to the rear yards of the units on Lots 1 – 9. The location of the required noise barriers is presented in Figure 4. In order to provide sufficient mitigation, the noise barriers need to be at least 5.5 feet in height relative to the finish pad elevation of the exterior living space. These noise barriers need to have a surface density of at least 3.5 pounds per square foot and have no openings or gaps. They may be constructed unit cinder blocks, an earthen berm, stud walls with stucco on the exterior, 3/8" plate glass, 5/8" Plexiglas, or a combination of these materials. The Wall/Fence Plan identifies a 6' high block wall at the rear lot line of the units adjacent Placentia Ave. The proposed noise barrier will provide sufficient mitigation.

With the aforementioned noise barriers in place, the exterior living spaces of all the units within the project are expected to meet the exterior noise standard of 65 dB CNEL. No further mitigation measures will be required.

Recommendations

According to the Noise Policies listed above, all of the dwelling units within the project must meet the interior noise standard of 45 dB CNEL. In order to meet this standard, each of the dwelling units adjacent to Placentia Ave. will need to provide at least 21 dB of outdoor-to-indoor noise reduction. Calculations need to be conducted to show that the proposed dwelling units will provide sufficient noise mitigation from exterior noise sources to meet this interior noise standard. It is recommended that an additional analysis be conducted to ensure that the specific dwelling units to be located on site are designed to meet the interior noise standard. This analysis should be conducted by a certified acoustical consultant experienced in the preparation of these kinds of analyses.

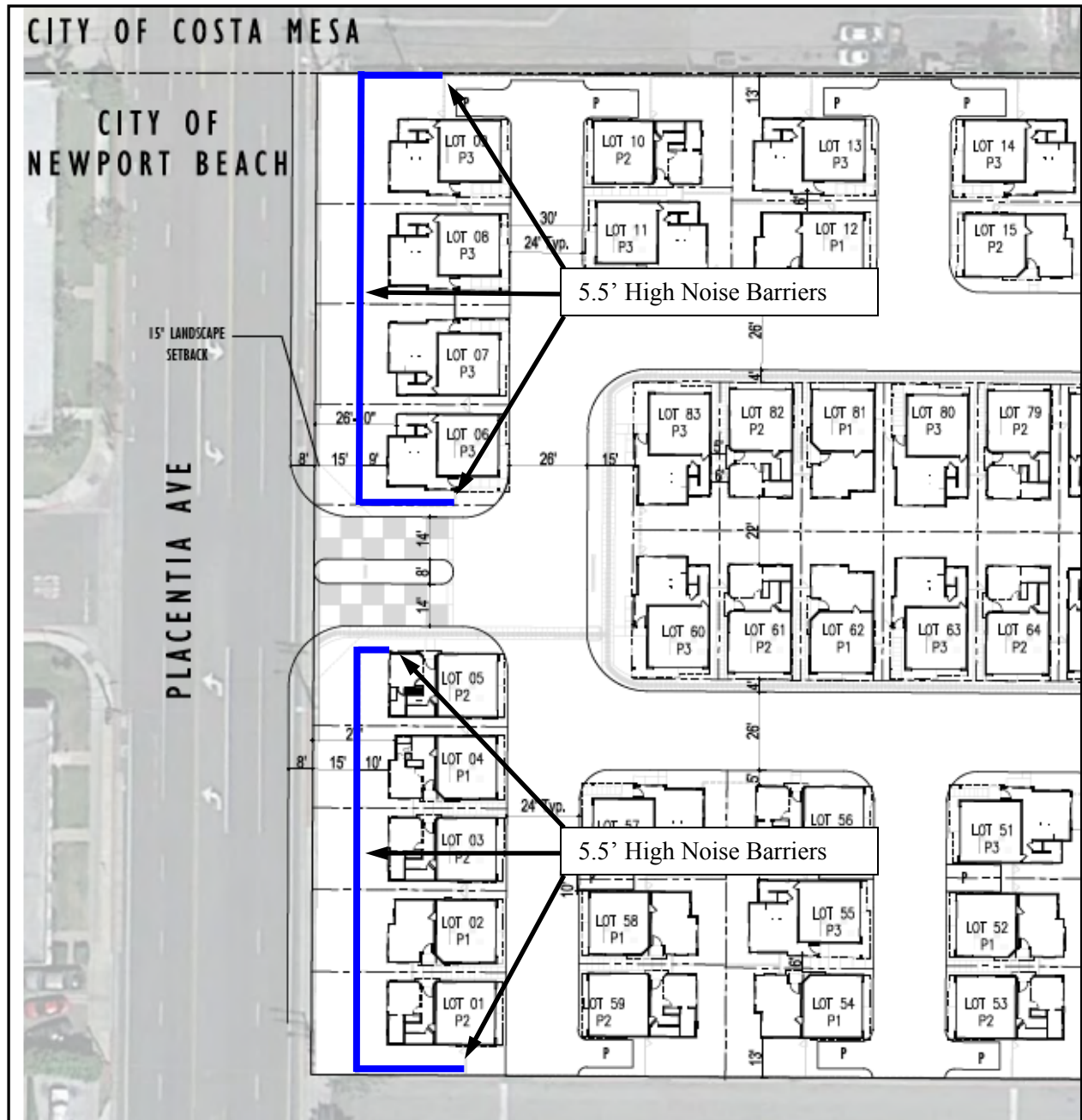


Figure 4. Location of Required 5.5' High Noise Barriers