AGENDA
PUBLIC SAFETY COMMITTEE

June 10, 2009
9:30 A.M.

Laguna Woods City Hall
Council Chambers
24264 El Toro Road
Laguna Woods, CA 92637

AGENDA DESCRIPTION: The Agenda descriptions are intended to give notice, to members of the public, of a general summary of items of business to be transacted or discussed. Any person wishing to address the Public Safety Committee on any matter, whether or not it appears on this agenda, may do so under the appropriate section of the agenda. Whenever possible, lengthy testimony should be presented to the Committee in writing (12 copies) and only pertinent points presented orally. Requests to speak to items on the agenda shall be heard at the appropriate point on the agenda; requests to speak about subjects not on the agenda will be heard during the Public Comment section of the meeting.

I. CALL TO ORDER

II. ROLL CALL

III. COMMITTEE BUSINESS*

A. Fiscal Year 2009-10 Capital Improvement Program (Attachment 1)

RECOMMENDED ACTION: Discuss and recommend approval of the current and seven year Capital Improvement Programs.

B. Moulton Parkway Construction Schedule (Attachment 2)

RECOMMENDED ACTION: Recommend that the City Council authorize either:

1. Work on the roadway during the day, with traffic limited to one lane in each direction

OR

2. Work on the roadway in the late evening/early morning hours.

C. Dog Park Hours of Operation

RECOMMENDED ACTION: Establish dog park hours of operation and the segregation of small and large dogs.

D. Hoarding and Clutter (Attachment 3)

RECOMMENDED ACTION: Discuss issues and establish task force.

* Note: The discussion of "no right turns on red" has been deferred to the July meeting.

IV. CURRENT PROJECT UPDATE

A. Implementation of New Animal Services Regulations
B. City Hall Parking Lot ADA Modifications

V. COMMITTEE MEMBER COMMENTS

VI. PUBLIC COMMENTS

VII. ADJOURN

Next regularly scheduled meeting at 9:30 a.m., Thursday, July 8, 2009

AGENDA
PUBLIC SAFETY COMMITTEE
Meeting Recap

May 13, 2009
9:30 A.M.

Laguna Woods City Hall
Council Chambers
24264 El Toro Road
Laguna Woods, CA 92637

I. CALL TO ORDER

Chair Jan Brayley called the meeting to order at 9:30 a.m.

II. ROLL CALL

Present: Betty Baumann, Jan Brayley, George Henderson, Tom Letcher, Jo Ann Leuck, Ken Min, Nate Rosenblatt, Virginia Templeton, Stu Venable

Absent: Hal Horne, Libby Marks

III. COMMITTEE BUSINESS

A. Committee Vice-Chair

Virginia Templeton was unanimously elected Vice Chair.

B. Introduction to Orange County Fire Authority and Services Provided to Laguna Woods

Division Chief Ed Fleming reviewed a PowerPoint presentation on the Orange County Fire Authority and, together with Education Specialist Polly Bowen, answered questions from the Committee.

Regarding the Vial of Life and In Case of Emergency (ICE) programs, Specialist Bowen stated that there is no guarantee that OCFA staff will

check for either. City Manager Keane suggested that residents consider keeping a list of medications in their purse or wallet.

Division Chief Fleming noted that OCFA does not solicit money and residents should be careful when responding to organizations soliciting money on behalf of firefighters.

City Manager Keane announced that the next Community Emergency Response Team (CERT) Academy will be held in the Fall.

Specialist Bowen asked Committee members to notify her of events and other opportunities for public outreach.

C. "No Right Turns on Red" Restrictions

The following intersections were identified for further discussion and consideration of a "No Right Turn on Red" restriction:

- Gate 12 turning onto the golf course from Moulton
- Town Center and El Toro Road intersection
- Turning into Gate 5 from El Toro Road

City Manager Keane suggested that the Committee wait to discuss the El Toro Road and Moulton Parkway intersection until the Moulton Parkway Smart Street improvements are complete.

Betty Baumann suggested that a proposal to require wheelchairs to display yellow flags for safety be agendized at a future meeting.

D. Animal Services

The Committee appointed Virginia Templeton and Tom Letcher to the new Animal Services Subcommittee. The Subcommittee will replace the City Manager's Animal Services Committee, which was recently disbanded. Virginia Templeton and Tom Letcher will be responsible for appointing non-Committee members to the Subcommittee.

Nate Rosenblatt suggested that the Subcommittee consider encouraging residents to photograph their pets in case of emergency.

IV. COMMITTEE MEMBER COMMENTS

City Manager Keane, responding to a question from Stu Venable, discussed how the mandatory spay-neuter ordinance will be enforced.

City Manager Keane, responding to a request from Virginia Templeton, discussed the Ridge Route Linear Park and City Center Park projects.

V. PUBLIC COMMENTS – None

VI. ADJOURN

The meeting was adjourned at 10:50 a.m. The next regular meeting of the Public Safety Committee will be at 9:30 a.m. on June 10, 2009, at Laguna Woods City Hall, 24264 El Toro Road, Laguna Woods, CA 92637.

Capital Improvement Program (CIP)
Open Projects Approved through FY 09-10

#	PROJECT NAME	FUNDED FY 04/05	FUNDED FY 05/06	FUNDED FY 06/07	FUNDED FY 07/08	FUNDED FY 08/09	PROPOSED FY 09/10	TOTAL BUDGET
1.	City Hall Acquisition	$3,000,000		$1,000,000	$250,000			$4,250,000[1]
2.	Moulton Smart Street Widening Project	$100,000	$1,500,000	$2,647,775	$7,441,000	$431,443	2,919,782	$15,040,000[2]
3.	Ridge Route Linear Park – Phase II						$75,000	$75,000
4.	City Hall Renovations				$65,000			$65,000[3]
5.	El Toro Rd/Avenida Sevilla Stormdrain						$176,627	$176,627
6.	City Centre Park – Phase I						$385,987	$385,987
7.	El Toro Road Eastbound Rehab				$400,000	$281,223	$78,043	$759,266

#	PROJECT NAME	FUNDED FY 04/05	FUNDED FY 05/06	FUNDED FY 06/07	FUNDED FY 07/08	FUNDED FY 08/09	PROPOSED FY 09/10	TOTAL BUDGET
8.	El Toro Road Landscaping – Calle Sonora to Moulton Parkway			$75,000				$75,000

1. At the end of FY 08-09, remaining balance will be $164,197.
2. At the end of FY 08-09, remaining balance will be $14,491,330.
3. At the end of FY 08-09, remaining balance will be $24,220.

SEVEN YEAR CAPITAL IMPROVEMENT PROGRAM (CIP)
FY 08/09 through 14/15

ATTACHMENT III- A

Project	Funding	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16
Road Improvements								
Moulton Smart Street Project - Via Campo Verde - Santa Maria Ave.	Measure M							
	County funds	2,919,782						
	Total	2,919,782						
El Toro Road Eastbound Pavement Rehabilitation - Southerly City boundary to Calle Sonora	Prop 1B funds							
	OC CAP	43,043						
	RAC funds	35,000						
	Traff Cong Relief							
	Measure M							
	Total	78,043						
Santa Maria Ave Pavement Resurfacing - Moulton Pkwy to Avenida Sosiega	Measure M		350,000					
	Laguna Hills		100,000					
	AHRP		250,000					
	Total		700,000					
El Toro Rd/Avenida Sevilla Stormdrain	Prop 1B	176,627						
	Total	176,627						
Slurry Seal Program	Measure M		50,000	50,000	50,000	50,000	50,000	
	Total		50,000	50,000	50,000	50,000	50,000	
Parks								
Ridge Route Linear Park	Fuel Tax							
	Park In Lieu Fees	75,000						
	Total	75,000						
City Centre Park	Park Bond							
	Park In Lieu Fees	190,987						
	Total	190,987						

SEVEN YEAR CAPITAL IMPROVEMENT PROGRAM (CIP)
FY 08/09 through 14/15

ATTACHMENT III- A

Project	Funding	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16

CIP Revenues	Measure M	0	400,000	50,000	50,000	50,000	50,000	
CIP Expenditures		0	400,000	50,000	50,000	50,000	50,000	
Balance		0	0	0	0	0	0	
CIP Revenues	Prop 1B	176,627						
CIP Expenditures		176,627						
Balance		0						
CIP Revenues	Federal		250,000					
CIP Expenditures			250,000					
Balance		0	0	0	0	0	0	
CIP Revenues	Park In Lieu	265,987						
CIP Expenditures		265,987						
Balance		0	0	0	0	0	0	
CIP Revenues	Other Funds	2,997,825	100,000	0	0	0	0	
CIP Expenditures		2,997,825	100,000	0	0	0	0	
Balance		0	0	0	0	0	0	

City of Laguna Woods
Agenda Report

FOR: June 10, 2009 Public Safety Committee Meeting

TO: Public Safety Committee

FROM: Douglas C. Reilly, Assistant City Manager

Agenda Item: Moulton Parkway Construction Schedule

Recommendation:

Recommend that the City Council authorize either:

1. Work on the roadway during the day, with traffic limited to one lane in each direction

OR

2. Work on the roadway in the late evening/early morning hours.

Background

The County of Orange, through a cooperative agreement with the City of Laguna Woods, has prepared plans and specifications for the construction of the Moulton Smart Street Project, Phase 1, at the intersection of Moulton Parkway and El Toro Road. These improvements include the widening of both streets, the addition of left turn lanes on El Toro Road, the addition of right turn lanes on three legs of the intersection, the addition of a bus turnout just north of the entrance to the Moulton Auto Spa, and pavement resurfacing. Due to the extent of the planned work and the likelihood of disruptions to traffic flow, staff requested the County investigate performing the required work at night. The project area is bordered solely by commercial properties, however, homes are located just behind the Willow Tree Center.

Discussion

In order to evaluate the impacts of the nighttime construction, the County had a consultant conduct a noise study. Attached is the Moulton Parkway Street Widening Project Construction Noise Study Report, dated March 26, 2009. The report identifies that there would be noise impacts to homes in Laguna Woods to the east of the intersection, behind the Willow Tree Center, during the course of certain construction activities. However, the County has determined that this noise can be mitigated by performing the loudest noise generating work before 10:00 p.m. Accordingly, the County proposes to establish the beginning of the working hours at 6:00 p.m., in lieu of the typical 8:00 p.m., as a mitigation program for these noise impacts. The noise study does identify "noise blankets" (high, temporary walls placed around the work zone) which may aid in the reduction of noise impacts but this has been determined to be impractical for the scope and length of this project.

The County is requesting a noise variance from the City Council, acting as the Noise Variance Board as provided for in the City's municipal code. It may be that the benefits of maintaining open traffic flow during daylight hours on Moulton Parkway outweigh the impact of the construction noise. The noise impacts from the nighttime work will be partially mitigated and will be of short duration affecting a limited number of properties. This project is planned to be under construction in spring 2010.

The County of Orange, as lead agency, environmentally cleared this project via Final EIR No. 542 and Addendum IP 04-233. The County is currently preparing a new addendum to the EIR to acknowledge the Construction Noise Study Report and other unrelated environmental updates to the project.

Fiscal Impact

This project is funded by the County through various Road Fee Programs and Measure M.

Conclusion

The County of Orange is finalizing plans to bid the Moulton Smart Street Project, Phase 1, for work at the intersection of Moulton Parkway and El

Toro Road. The County had a noise study conducted to determine the impacts from performing work on the project at night. They are requesting a noise variance from the City Council to maintain open traffic flow at this busy intersection during the day, and proposing that work begin earlier in the evening to partially mitigate noise impacts.

Approved:

Leslie A. Keane
City Manager

CONSTRUCTION NOISE STUDY REPORT

MOULTON PARKWAY STREET WIDENING PROJECT

LAGUNA HILLS, CA AND LAGUNA WOODS, CA

INTERNAL DRAFT

Prepared for

Orange County Public Works
300 N. Flower Street
Santa Ana, CA 92703

3/26/2009

Prepared by

URS

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1.1 Introduction and Project Description

The County of Orange is proposing improvements along a 1.5 mile section of Moulton Parkway in the cities of Laguna Hills and Laguna Woods. The project extends from 300 feet south of Via Campo Verde to the southern end of the intersection of Moulton Parkway and El Pacifico Drive on the north. Refer to Figures 4, 5, and 6. Changes in operational noise exposure resulting from the proposed improvements have been analyzed[1]. Previous analyses assumed that construction activities would occur during daytime hours. The purpose of this study is to evaluate potential impacts from construction activity during nighttime hours.

Construction associated with the proposed improvements will consist of removal of existing facilities and vegetation, site clearance, addition of a continuous bike lane, continuous sidewalk and curbs, ADA compliant driveways and curb ramps, bus pads, road pavement rehabilitation, retaining walls, soil nail walls, concrete soundwall, drainage improvements, box culvert extension, signing and striping, traffic signal modification, landscape and irrigation improvements, relocating utilities and amenities in and around the project site and construction of additional turn lanes along the intersections of Moulton Parkway from Via Campo Verde to Ridge Route Drive. Median work, as well as some of the other construction work listed previously, will take place along Moulton Parkway between Ridge Route Drive and El Pacifico Drive.

Construction work has been proposed to take place during nighttime hours in order to avoid adverse effects on traffic. This report addresses the potential impacts of nighttime construction activities on surrounding land uses and is organized into the following subsections: fundamentals of acoustics, local noise ordinances, source noise levels from construction equipment, field noise measurement results, potentially impacted receptors, and potential mitigation measures.

1.2 Fundamentals of Acoustics

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and interferes with or disrupts normal activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human responses to typical environmental noise exposure levels are annoyance, communication interference, and sleep disturbance. The responses of individuals to similar noise events are diverse and influenced by many factors including the type of noise, the perceived importance of the noise, its appropriateness to the setting, the time of day and the type of activity during which the noise occurs, and noise sensitivity of the individual.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and amplitude. Frequency describes the sound's pitch (tone) and is measured in cycles per second (Hertz [Hz]), while amplitude describes the sound's pressure

[1] Moulton Parkway Widening, Addendum IP 04-233 to Final Environmental Impact Report 542, BonTerra Consulting, January 4, 2005.

(loudness). Because the range of sound pressures that occur in the environment is extremely large, it is convenient to express these pressures on a logarithmic scale that compresses the wide range of pressures into a more useful range of numbers. The standard unit of sound measurement is the decibel (dB).

Hz is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a number of times per second. When the drum skin vibrates 100 times per second it generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the healthy human ear.

As mentioned above, sound level is expressed by reference to a specified national/international standard. The Sound Pressure Level (SPL) is used to describe sound at a specified distance or specific receptor location. In expressing sound pressure level on a logarithmic scale, sound pressure is compared to a reference value of 20 micropascals (μPa). SPL depends not only on the power of the source, but also on the distance from the source and on the acoustical characteristics of the space surrounding the source (absorption, reflection, etc.).

Outdoor sound levels decrease logarithmically as the distance from the source increases. This is due to wave divergence, atmospheric absorption, and ground attenuation. Sound radiating from a source in a homogeneous and undisturbed manner travels in spherical waves. As the sound waves travel away from the source, the sound energy is dispersed over a greater area decreasing the sound pressure of the wave. Spherical spreading of the sound wave from a point source reduces the noise level at a rate of 6 dB per doubling of distance.

Atmospheric absorption also influences the sound levels received by an observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances greater than 1,000 feet. The degree of absorption varies depending on the frequency of the sound as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest (i.e., sound carries further) at high humidity and high temperatures and lower frequencies are less readily absorbed (i.e., sound carries further) than higher frequencies. Over long distances, lower frequencies become dominant as the higher frequencies are more rapidly attenuated. Turbulence, gradients of wind and other atmospheric phenomena also play a significant role in determining the degree of attenuation. For example, certain conditions, such as temperature inversions can channel or focus the sound waves resulting in higher noise levels than would result from simple spherical spreading.

Sound from a tuning fork contains a single frequency (a pure tone), but most sounds one hears in the environment do not consist of a single frequency but rather a broad band of many frequencies differing in sound level. Because of the broad range of audible frequencies, methods have been developed to quantify these values into a single number. The most common method used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that is reflective of human hearing characteristics. Human hearing is less sensitive at low frequencies and extremely high frequencies than at the mid-range frequencies. This process is termed "A weighting", and the resulting dB level is termed the "A weighted" decibel (dBA). "A weighting" is widely used in local noise ordinances and state and federal guidelines. In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve. Unless specifically noted, the use of

A weighting is always assumed with respect to environmental sound and community noise even if the notation does not show the "A".

In terms of human perception, a sound level of 0 dBA is approximately the threshold of human hearing and is barely audible by a healthy ear under extremely quiet listening conditions. This threshold is the reference level against which the amplitude of other sounds is compared. Normal speech has a sound level of approximately 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort progressing to pain at still higher levels. Humans are much better at discerning relative sound levels than absolute sound levels. The minimum change in the sound level of individual events that an average human ear can detect is about 1 to 3 dBA. A 3 to 5 dBA change is readily perceived. An increase (or decrease) in sound level of about 10 dBA is usually perceived by the average person as a doubling (or halving) of the sound's loudness.

Because of the logarithmic nature of the dB unit, sound levels cannot be added or subtracted directly and are somewhat cumbersome to handle mathematically. However, some simple rules are useful in dealing with sound levels. First, if a sound's intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. Thus, for example: 60 dB + 60 dB = 63 dB, and 80 dB + 80 dB = 83 dB. Remember however, that it requires about a ten decibel increase to double the perceived intensity of a sound and it is interesting to note that a doubling of the acoustical energy (a 3 dB increase) is at the lower limit of readily perceived change.

Although dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most ambient environmental noise includes a mixture of noise from nearby and distant sources that creates an ebb and flow of sound including some identifiable sources plus a relatively steady background noise in which no particular source is identifiable. A single descriptor called the equivalent sound level (L_{eq}) is used to describe sound that is constant or changing in level. L_{eq} is the energy-mean dBA during a measured time interval. It is the "equivalent" constant sound level that would have to be produced by a given constant source to equal the acoustic energy contained in the fluctuating sound level measured during the interval. In addition to the energy-average level, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum L_{eq} (L_{max}) and minimum L_{eq} (L_{min}) indicators that represent the root-mean-square (RMS) maximum and minimum noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{10}, L_{50}, and L_{90} may be used. These are the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of the measured time interval. Sound levels associated with L_{10} typically describe transient or short-term events, L_{50} represents the median sound level during the measurement interval, while L_{90} levels are typically used to describe background noise conditions.

The Day-Night Average Sound Level (L_{dn} or DNL) represents the average sound level for a 24-hour day and is calculated by adding a 10 dB penalty only to sound levels during the night period (10:00 p.m. to 7:00 a.m.). The L_{dn} is the descriptor of choice used by nearly all federal, state, and local agencies throughout the United States to define acceptable land use compatibility with respect to noise. Within the State of California, the Community Noise Equivalent Level (CNEL) is sometimes used. CNEL is very similar to L_{dn}, except that an additional 5 dB penalty is applied to the evening hours (7:00 p.m. to 10:00 p.m.) Because of the time-of-day penalties associated with the L_{dn} and CNEL descriptors, the L_{dn} or CNEL dBA value for a continuously

operating sound source during a 24-hour period will be numerically greater than the dBA value of the 24-hour L_{eq}. Thus, for a continuously operating noise source producing a constant noise level operating for periods of 24 hours or more, the L_{dn} will be 6 dB higher than the 24-hour L_{eq} value. To provide a frame of reference, common sound levels are presented in Table 1, "Sound Levels of Typical Noise Sources and Noise Environments".

TABLE 1

Sound Levels of Typical Noise Sources and Noise Environments (A-Weighted Sound Levels)

Noise Source (at Given Distance)	Scale of A-Weighted Sound Level in Decibels	Noise Environment	Human Judgment of Noise Loudness (Relative to a Reference Loudness of 70 Decibels*)
Military Jet Take-off with After-burner (50 ft)	140	Carrier Flight Deck	–
Civil Defense Siren (100 ft)	130	–	–
Commercial Jet Take-off (200 ft)	120	–	**Threshold of Pain** *32 times as loud
Pile Driver (50 ft)	110	Rock Music Concert	*16 times as loud
Ambulance Siren (100 ft) Newspaper Press (5 ft) Power Lawn Mower (3 ft)	100		**Very Loud** *8 times as loud
Propeller Plane Flyover (1,000 ft) Diesel Truck, 40 mph (50 ft) Motorcycle (25 ft)	90	Boiler Room Printing Press Plant	*4 times as loud
Garbage Disposal (3 ft)	80	High Urban Ambient Sound	*2 times as loud
Passenger Car, 65 mph (25 ft) Living Room Stereo (15 ft) Vacuum Cleaner (3 ft)	70	–	**Moderately Loud** *70 decibels (Reference Loudness)
Air Conditioning Unit (100 ft) Normal Conversation (5 ft)	60	Data Processing Center Department Store	*1/2 as loud
Light Traffic (100 ft)	50	Private Business Office	*1/4 as loud
Bird Calls (distant)	40	Lower Limit of Urban Ambient Sound	**Quiet** *1/8 as loud
Soft Whisper (5 ft)	30	Quiet Bedroom	**Very Quiet**
	20	Recording Studio	
	10	–	**Extremely Quiet**
	0	–	**Threshold of Hearing**

Source: Compiled by URS Corporation from various published sources and widely-used references such as The Handbook of Acoustical Measurements and Noise Control, Third Edition, edited by C.M. Harris, 1991; Federal Agency Review of Selected Airport Noise Analysis Issues, 1992, Modified by The Louis Berger Group, Inc, 2004. and Noise and Vibration Control, Second Edition, edited by L.L. Beranek, 1988 Institute of Noise Control Engineering.

1.3 Local Noise Ordinances

The proposed project is located in the cities of Laguna Woods, California and Laguna Hills, California within Orange County. The project consists of widening Moulton Parkway and adding lanes at intersections along Moulton Parkway. The south end of the project starts at the Via Campo Verde intersection and proceeds north to the south end of the intersection of Moulton Parkway and El Pacifico Drive. Lanes will be added along Moulton Parkway as well as the adjacent streets depending on the intersection.

Federal and state governments do not have specific guidelines for construction noise, other than OSHA, which sets standards to protect construction workers from hearing loss. Since construction will occur within three jurisdictions that have their own local noise ordinances, all three ordinances were reviewed.

The cities of Laguna Woods and Laguna Hills have adopted identical noise ordinances based on the Orange County Code. All decibel levels are A-weighted (dBA). The Orange County Code (Ordinance 2003-11 § 2: OCC § 4-6-5) uses the L_{50} as the baseline criterion level. The L_{50} is the noise level that can not be exceeded more than 50 percent of the time, for example, more than 30 minutes per hour. Table 2 presents the noise metrics and the levels that cannot be exceeded during the given time periods in Orange County.

L_{50} is the baseline and it is used to determine the parameters and standards for the noise created during non-exempt construction times. For construction within Orange County, there are times when noise is exempt from these standards. These times include 7:00 AM to 8:00 PM on weekdays and 8:00 AM to 5:00 PM on weekends and federal holidays. During periods when construction noise is not exempted, there are two periods of concern. 55 dBA is the level that can not be exceeded from 8:00 PM to 10:00 PM on weekdays and 50 dBA can not be exceeded from 10:00 PM to 7:00 AM on weekends and federal holidays. If the noise is from an impact noise source, a 5 dBA reduction (penalty) is applied to each level. Interior noise standards are also listed in Table 2 per the Orange County Code. Interior noise measurements can be made with the windows open. If the ambient noise level exceeds the level listed in Table 2, then the ambient noise level is used to define the standard.

All measurements must be taken from a spot on the property that is closest to the potential or present noise source. According to Orange County Code, "it is unlawful for any person to create any noise which causes the noise level at any school, hospital, or church while the same is in use to exceed the noise limits...or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital" (Ordinance 2003-11 § 2: OCC § 4-6-8). There are several churches and one preschool (associated with a church) in the area that may be impacted. These areas are addressed in subsequent sections.

TABLE 2

Noise Ordinance Standards (Orange County)*

			Noise Levels Not To Be Exceeded In Residential Zones**	
EXTERIOR NOISE STANDARDS	**Maximum Time of Exposure**	**Noise Metric**	**7 a.m. to 10 p.m. (daytime)**	**10 p.m. to 7 a.m. (nighttime)**
	30 Minutes/Hour	L_{50}	55 dBA	50 dBA
	15 Minutes/Hour	L_{25}	60 dBA	55 dBA
	5 Minutes/Hour	$L_{8.3}$	65 dBA	60 dBA
	1 Minute/Hour	$L_{1.7}$	70 dBA	65 dBA
	Any period of time	L_{max}	75 dBA	70 dBA
INTERIOR NOISE STANDARDS				
	5 Minutes/Hour	$L_{8.3}$	55 dBA	45 dBA
	1 Minute/Hour	$L_{1.7}$	60 dBA	50 dBA
	Any period of time	L_{max}	65 dBA	55 dBA
*Construction Noise Exemption Periods: 7:00 a.m. - 8:00 p.m. Weekdays 8:00 a.m. - 5:00 p.m. Weekends/Holidays **5 dBA reduction for impact noise during non-exempt times				
SOURCE: Orange County, Ordinance 2003-11 § 2: OCC § 4-6-5.				

1.4 Source Noise Levels From Construction Equipment

Construction noise from the proposed project could affect nearby sensitive receptors. The noise limit criterion for each of the jurisdictions is 55 dBA for the period from 8:00 p.m. to 10:00 p.m. and 50 dBA for the period from 10 p.m. to 7:00 A.M. Construction activities are expected to occur during these periods. Precise equipment types, utilization rates, and hours of expected use are not currently known. The equipment types and usage factors presented in this section are based on data obtained from representative transportation construction projects.

Table 3 shows construction noise data included in the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM). These data contain both predicted and empirical data. Table 3 is a variation of a chart found in the RCNM User's Guide. The original table has been modified based on the requirement to meet 50 dBA during nighttime hours. Calculations were performed to determine the distance at which noise levels will decrease to 50 dBA for each equipment type. For impact equipment, a 5 dBA reduction is applied. The acoustical usage factor (column three) represents the percentage of time that a given equipment type is typically used. The "Distance at Which Level = 50 dBA" column (column four) is based on attenuation due to wave divergence only. This represents a worst case scenario as it does not account for the attenuation of sounds levels due to terrain, air absorption, etc. The sound levels presented in Table 3 assume no acoustical mitigation.

TABLE 3

RCNM Default Noise Emission Reference Levels

Equipment Description	Impact Device?	Source Noise Level Lmax @ 50ft (dBA, slow)	Distance At Which Level = 50 dBA/45 dBA for Impact Noise* (feet)
Sand Blasting (single nozzle)	No	96	9,976
Sheers (on backhoe)	No	96	9,976
Hydra Break Ram	Yes	90	8,891
Mounted Impact Hammer (hoe ram)	Yes	90	8,891
Jackhammer	Yes	89	7,924
Clam Shovel (dropping)	Yes	87	6,294
Concrete Saw	No	90	5,000
Pavement Scarifier	No	90	5,000
Vibrating Hopper	No	87	3,539
All Other Equipment > 5 HP	No	85	2,811
Compressor (air)	No	85	2,811
Generator(<25KVA, VMS Signs)	No	85	2,811
Grader	No	85	2,811
Horizontal Boring Hydraulic Jack	No	85	2,811
Pneumatic Tools	No	85	2,811
Vacuum Excavator (Vac-Truck)	No	85	2,811
Auger Drill Rig	No	84	2,505
Chain Saw	No	84	2,505
Flat Bed Truck	No	84	2,505
Rivet Buster/Chipping Gun	Yes	79	2,505
Scraper	No	84	2,505
Tractor	No	84	2,505
Boring Jack Power Unit	No	83	2,233
Concrete Batch Plant	No	83	2,233
Gradall	No	83	2,233
Warning Horn	No	83	2,233
Dozer	No	82	1,990
Grapple (on backhoe)	No	82	1,990
Vacuum Street Sweeper	No	82	1,990
Concrete Pump Truck	No	81	1,774
Crane	No	81	1,774
Excavator	No	81	1,774
Generator	No	81	1,774
Pumps	No	81	1,774
Rock Drill	No	81	1,774
Bar Bender	No	80	1,581
Drum Mixer	No	80	1,581
Roller	No	80	1,581
Slurry Trenching Machine	No	80	1,581

Soil Mix Drill Rig	No	80	1,581
Vibratory Concrete Mixer	No	80	1,581
Concrete Mixer Truck	No	79	1,409
Drill Rig Truck	No	79	1,409
Front End Loader	No	79	1,409
Ventilation Fan	No	79	1,409
Backhoe	No	78	1,255
Compactor (ground)	No	78	1,255
Slurry Plant	No	78	1,255
Paver	No	77	1,119
Dump Truck	No	76	997
Man Lift	No	75	889
Pickup Truck	No	75	889
Welder/Torch	No	74	792
Refrigerator Unit	No	73	706

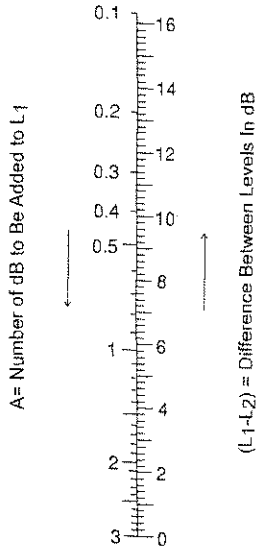
*5 dB reduction for impact noise levels per Laguna Woods/Laguna Hills Noise Ordinance

Source: Adapted From Roadway Construction Noise Model User's Guide (FHWA, 2006)

The data shown in Table 3 considers only the decrease in noise due to wave divergence and does not consider topographical effects specific to the project area. These levels are representative of worst case conditions. The data indicates that noise from many of the impact devices can travel very far distances before falling to 45 dBA (50 dBA – 5 dBA penalty for impact noise). Sheers from a backhoe and sand blasting also create high levels of noise. Noise levels from jackhammers, which will definitely be used for the proposed project, reach up to almost 8,000 feet before falling to 45 dBA and concrete saws travel up to 5,000 feet before falling to 50 dBA.

Some equipment may be used at the same time and will cause more noise than what is being created by a single piece of equipment. Figure 1 shows the effect of adding two levels together.. This is essential to understanding that some equipment may not be used at the same time as other equipment. For example, if a crane and a rock drill, both having a level of 81 dBA at 50 feet, are used at the same time, the sound coming from the area of construction will be 84 dBA.

Figure 1 – Difference Between Levels in dB



Source: The Handbook of Acoustical Measurements and Noise Control, Third Edition, edited by C.M. Harris, 1991.

1.5 Moulton Parkway Field Measurement Results

Noise monitoring was completed in order to gain an understanding of the sound propagation characteristics of the project area, the distances and the topography specific to the project. This data was required as predictions from existing noise modeling software were not sufficient given the complex topographic characteristics of the project area. The RCNM does not account for noise mitigation due to topography, therefore, the source noise levels from the RCNM were supplemented with filed measurement data in order to accurately model potential noise impacts.

Noise monitoring along, and near the vicinity of, Moulton Parkway was conducted on December 10 and December 11, 2008. The measurements consisted of both long-term and short-term data collection. Long-term measurements were conducted at locations considered to be the most critical locations due to potential impacts from the proposed project. Short-term measurements were conducted at additional locations to supplement the long-term data.

Figure 4 through Figure 6 depict the locations of both long-term and short-term measurements. Long-term measurements (LT) were 24-hour measurements obtained by placing sound level meters set to record one-second L_{eq}s for the entire long-term measurement period. This data was later retrieved and analyzed. Short-term (ST) measurements were conducted for 20-minute periods. The short-term measurements were attended by field personnel and the data summary for each measurement was manually recorded on Field Measurement Data Sheets (FMDS).

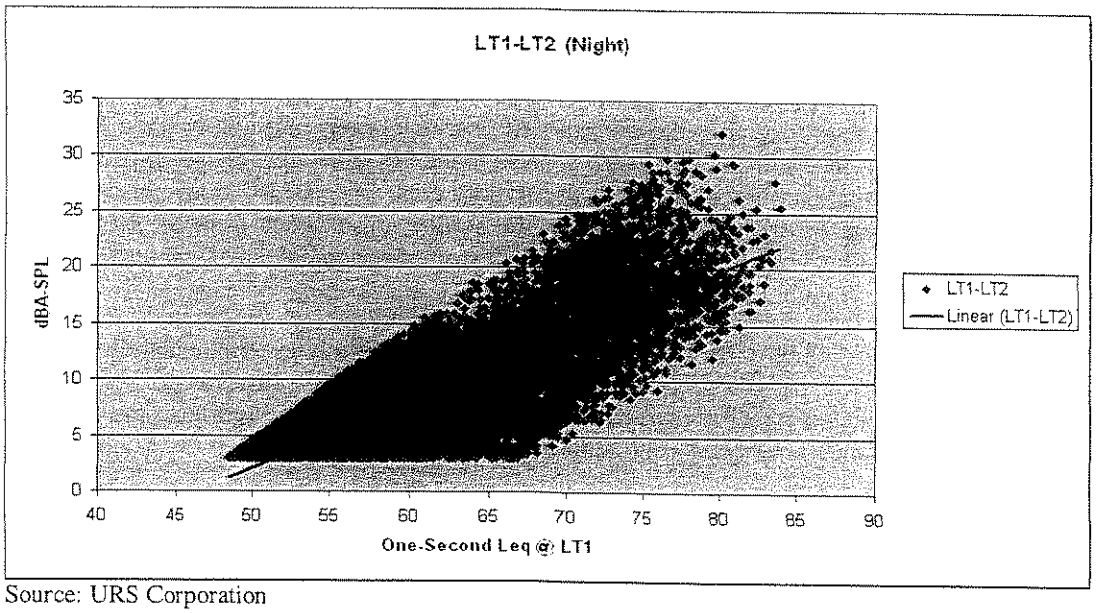
A total of four long-term measurements at two specific areas of concern were conducted. These two areas are the intersection of El Toro Road and Moulton Parkway and the intersection of Santa Maria Avenue and Moulton Parkway. Long-term measurements were conducted in pairs in order

to assess the noise levels and sound propagation effects specific to the critical areas. LT-1 was positioned at the intersection of Santa Maria Avenue and Moulton Parkway while LT-2 was placed 480 feet away from LT-1 on the edge of the nearest residential property (at 3108 Via Serena) on the southwest side of this intersection along Santa Maria Avenue. The difference in sound levels between LT-1 and LT-2 enables the evaluation of sound propagation characteristics specific to these areas. Since construction is being completed at night, data from 10:00 PM to 7:00 AM was used in the analysis.

Using the one-second L_{eq} measurements taken from both LT-1 and LT-2, the 90th percentile (L_{90}) of the measurements was used to filter out background noise. The L_{90} at night for LT-1 is 45.9 dBA and the nighttime L_{90} at LT-2 is 45.3 dBA. The measured noise values below these levels at the specific sites were filtered from the data. Additional filtering including deleting every one-second L_{eq} from the LT-2 data that has less than a 3 dBA drop from the matching one-second L_{eq} at LT-1. Since LT-2 is 430 feet from the middle of the intersection, it is conservative to say that more than 3 dBA attenuation will occur.

Regression analysis was used in order to evaluate the relationship between the noise created at the intersection and the noise reaching the sensitive receptor location. Figure 2 provides a graphical representation of this analysis. From the analysis, if a sound level originating from the intersection is 80 dBA, the sound level at receptor location LT-2 is expected to be approximately 60 dBA. If there is a sound level of 75 dBA at the intersection, the sound level at LT-2 is predicted to be approximately 58 dBA. These data indicate that the louder the noise level, the greater the attenuation.

FIGURE 2 – Regression Relationship Between Receptor Locations LT1 & LT2



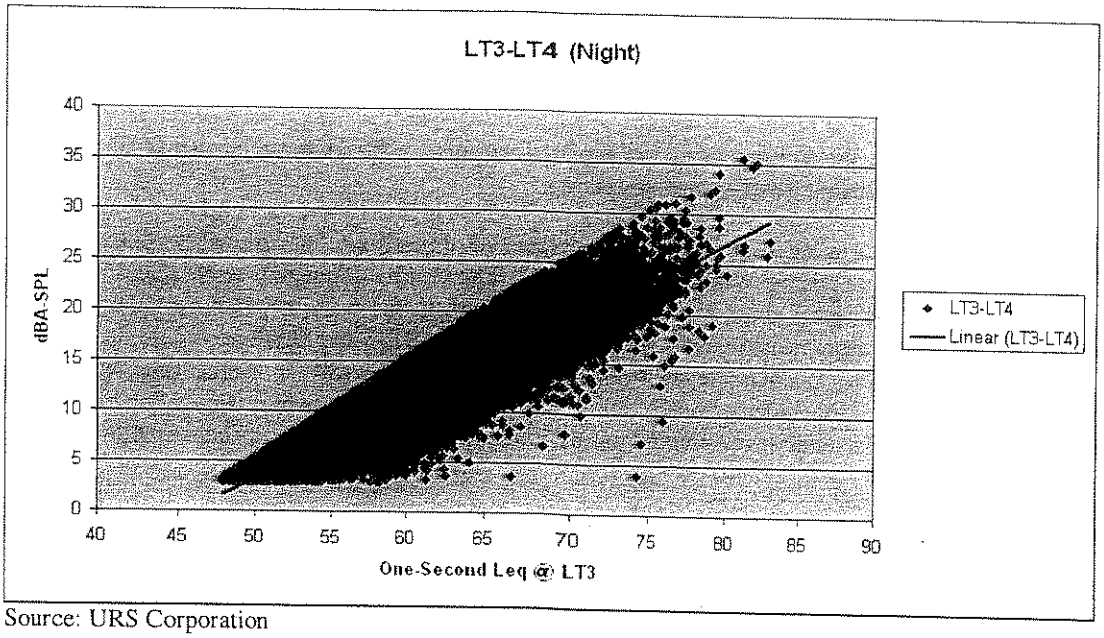
Source: URS Corporation

Similar analysis was conducted at the intersection at El Toro Road and Moulton Parkway to the residential area represented by 948 Calle Aragon. LT-3 and LT-4 were used in order to measure the change in sound levels from the intersection at El Toro Road and Moulton Parkway to 948 Calle Aragon. LT-3 is located near the corner of El Toro Road and Moulton Parkway. The closest sensitive receptor is located at 948 Calle Aragon, in a neighborhood behind Vons grocery store,

located near the corner of Moulton Parkway and El Toro Road. LT-4 was placed behind this house, in the backyard, facing Moulton Parkway. The distance from LT-3 to LT-4 is 600 feet.

The nighttime L_{90} at LT-3 is 47.8 dBA and the nighttime L_{90} at LT-4 is 44.5 dBA. The background noise data was once again filtered out. Every one-second L_{eq} from the LT-4 data that has less than a 3 dBA drop from LT-3 is filtered out. Regression analysis was used on the remaining data and the resulting relationship is presented in Figure 3.

FIGURE 3 - Regression Relationship Between Receptor Locations LT3 & LT4



Source: URS Corporation

According to Figure 3, if the sound level coming from the intersection of Moulton Parkway and El Toro Road is 75 dBA, the sound level reaching the resident's backyard at 948 Calle Aragon is 53 dBA. The data shown in Figure 3 are similar to the data shown in Figure 2. Again, these data indicate that the louder the noise level, the greater the attenuation.

A series of short-term measurements were also completed in pairs in order to corroborate and supplement data collected from the long-term measurement sites as well as clarify to the change in level from one area to another. Day, evening and nighttime noise measurements were carried out for a majority of the short-term measurement sites. A total of 10 short-term measurement sites were selected.

Table 4 displays the L_{eq} and L_{50} for all of the short-term measurement sites. Figures, 4, 5 and 6 show the various locations of these sites. ST-1 and ST-2 were used to assess the change in noise level from the intersection of Moulton Parkway and El Toro Road to the nearby United Methodist Church. This data proved to be insignificant because the data collected at ST-1 was contaminated by the same traffic noise that reached the measurement site at ST-2. Also, there will be construction at Via Campo Verde, which is a much closer street.

ST-3 and ST-4 measurements accompany the long-term measurements (LT-1 and LT-2) done at the corner of Moulton Parkway and Santa Maria Avenue. These data are shown in Table 4. These data were contaminated by the volume of heavy traffic along Santa Maria Avenue. The traffic

noise levels along Santa Maria Avenue did not allow the sound levels near ST-3 to be an independent factor when attempting to determine the change in level from the intersection to the residence at LT-2.

A series of short-term measurements were also conducted at the intersection of Moulton Parkway and Ridge Route Drive. There were two pairs of short-term measurements conducted in this area. ST-5 was placed on the southwest corner of the intersection and ST-6 was placed on the sidewalk, near the street, along Ridge Route Drive. The sound level meter was not on the resident's property and, like ST-1 and ST-3, ST-5 was contaminated by heavy traffic along Ridge Route Drive. Thus, the change in sound level from ST-5 to ST-6 was not solely from the intersection itself. Subsequently, another pair of measurements was completed. ST-9 was at the same location as ST-5 and ST-10 was approximately 600 feet away from ST-9 and placed on residential property. With this measurement configuration, the traffic along Ridge Route Drive is less of a factor. The difference in sound level from ST-9 and ST-10 yields a better representation of noise levels at the property from construction noise at the intersection and contains less background noise than the earlier measurements.

A series of short-term measurements were completed along Moulton Parkway in between Santa Maria Avenue and Leisure World Gate No. 12. These measurements were taken in order to determine if construction noise would impact residents to the west of Moulton Parkway. Once again, these short-term measurements were done in pairs. ST-7 and ST-8 were paired in order to measure the change in sound level from Moulton Parkway (ST-7) to the backyard of the resident(s) at 3046 Via Serena South. ST-11 and ST-12 measurements were taken in order to assess the change in sound level from Moulton Parkway to the backyard of the resident(s) at 3031 Calle Sonora.

The short-term measurement data are summarized in Table 4. The noise levels shown are the L_{eq} and the criterion L_{50}.

TABLE 4

Short-Term Measurements

ST Site	Location	L_{eq} (dBA)	L_{50} (dBA)
ST-1	Moulton Parkway and El Toro Road (Distant)	66.2	63.5
ST-2	Moulton Parkway and El Toro Road (Near)	67.6	66.5
ST-3	Moulton Parkway and Santa Maria Ave. (Near)	68.9	65.5
ST-4	Moulton Parkway and Santa Maria Ave. (Distant)	66.2	62.5
ST-5	Moulton Parkway and Ridge Route Drive (Near)	66.6	65.0
ST-6	Moulton Parkway and Ridge Route Drive (Distant)	62.8	N/A
ST-7	Moulton Parkway and Gate No. 12 (Near)	72.7	69.0
ST-8	Moulton Parkway and Gate No. 12 (Distant)	53.7	53.0
ST-9	Moulton Parkway and Ridge Route Drive (Near)	73.5	71.1
ST-10	Moulton Parkway and Ridge Route Drive (Distant)	62.3	60.0
ST-11	Moulton Parkway and Gate No. 12 (Near)	76.8	75.2
ST-12	Moulton Parkway and Gate No. 12 (Distant)	50.6	48.5

Source: URS Corporation

The data shown in Table 4 were used to calculate the change in noise levels between Moulton Parkway and sensitive receptor locations. Table 4 indicates the change in sound levels for the L_{eq}

and L_{50} of each "near" and accompanying "distant" pair of short-term measurements. The changes in sound level from "near" the critical source of noise, which are the intersections of the locations listed, to the "distant" sound level meter are used to determine the sound propagation characteristics specific to the project site.

Since ST-1, ST-4 and ST-6 were all contaminated by nearby heavy traffic noise, the change in sound levels from their accompanying pairs is insignificant. The change in the sounds levels for ST-7 to ST-8 are 19 dBA and 16 dBA for the L_{eq} and L_{50} respectively. ST-7 was positioned near Moulton Parkway and ST-8 was placed in the backyard of a distant resident's home. The change in sound levels for the L_{eq} and L_{50} from ST-9 to ST-10 are approximately 11 dBA each. The change in sound levels for the L_{eq} and L_{50} for ST-11 and ST-12, near Moulton Parkway and Gate No. 12, shows a difference of 26.2 dBA and 26.7 dBA respectively.

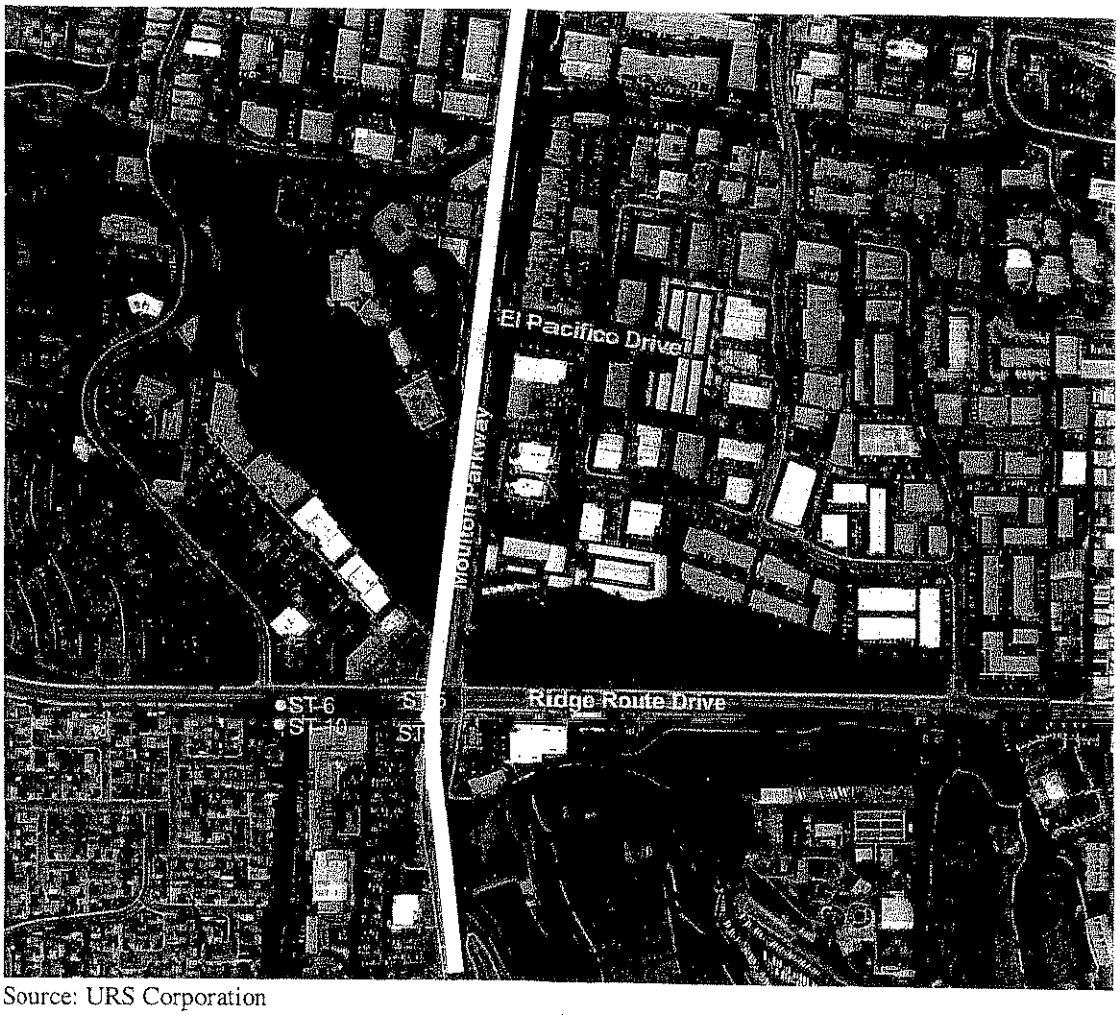
TABLE 5

ST Changes in Sound Level

ST Sites	Location	Change in L_{eq}	Change in L_{50}
(ST-2) - (ST-1)	Moulton Parkway and El Toro Road	N/A*	N/A*
(ST-3) - (ST-4)	Moulton Parkway and Santa Maria Ave.	N/A*	N/A*
(ST-5) - (ST-6)	Moulton Parkway and Ridge Route Drive	N/A*	N/A*
(ST-7) - (ST-8)	Moulton Parkway and Gate No. 12	19.0	16.0
(ST-9) - (ST-10)	Moulton Parkway and Ridge Route Drive	11.2	11.1
(ST-11) - (ST-12)	Moulton Parkway and Gate No. 12	26.2	26.7

*Irrelevant data due to heavy traffic noise away from intersection
Source: URS Corporation

FIGURE 4. Noise Measurement Locations at Moulton Parkway and Ridge Route Drive



Source: URS Corporation

FIGURE 5. Noise Measurement Locations at Moulton Parkway and Santa Maria Avenue

Source: URS Corporation

FIGURE 6. Noise Measurement Locations at Moulton Parkway and El Toro Road

Source: URS Corporation

1.6 Potentially Impacted Areas

The purpose of this report is to assess potential impacts from nighttime construction activities at sensitive receptor locations. Sensitive receptor locations include residential areas, churches, schools, and hospitals in the vicinity of the proposed project. The nighttime exterior noise standard stated in the Orange County Code is 50 dBA.

Construction will take place along Moulton Parkway and adjacent streets. The construction equipment source noise levels and noise attenuation characteristics obtained from the noise measurement survey were used to predict noise levels from construction activities at the noise sensitive receptor locations. These data are shown in Table 6. The data shown in Table 6 are representative of worst case conditions (i.e. construction activity occurring at the closest point to the sensitive receptor location.)

TABLE 6

RCNM Default Noise Emission Reference Levels and Predicted Noise Levels

Equipment Description	Impact Device?	Source Noise Level Lmax @ 50ft (dBA, slow)	Distance At Which Level = 50 dBA/45 dBA for Impact Noise* (in Feet)	Predicted Noise Level (dBA): Resident at LT-2 (3108 Via Serena)	Predicted Noise Level (dBA): Resident at LT-4 (948 Calle Aragon)	Predicted Noise Level (dBA): Resident at ST-10 (Along Ridge Route Drive)
Sand Blasting (single nozzle)	No	96	9,976	67	56	80
Sheers (on backhoe)	No	96	9,976	67	56	80
Hydra Break Ram	Yes	90	8,891	64	55	74
Mounted Impact Hammer (hoe ram)	Yes	90	8,891	64	55	74
Jackhammer	Yes	89	7,924	64	55	73
Clam Shovel (dropping)	Yes	87	6,294	63	55	71
Concrete Saw	No	90	5,000	64	55	74
Pavement Scarifier	No	90	5,000	64	55	74
Vibrating Hopper	No	87	3,539	63	55	71
All Other Equipment > 5 HP	No	85	2,811	62	54	69
Compressor (air)	No	85	2,811	62	54	69
Generator(<25KVA, VMS Signs)	No	85	2,811	62	54	69
Grader	No	85	2,811	62	54	69
Horizontal Boring Hydraulic Jack	No	85	2,811	62	54	69
Pneumatic Tools	No	85	2,811	62	54	69
Vacuum Excavator (Vac-Truck)	No	85	2,811	62	54	69
Auger Drill Rig	No	84	2,505	62	54	68
Chain Saw	No	84	2,505	62	54	68
Flat Bed Truck	No	84	2,505	62	54	68
Rivet Buster/Chipping Gun	Yes	79	2,505	60	53	63
Scraper	No	84	2,505	62	54	68
Tractor	No	84	2,505	62	54	68
Boring Jack Power Unit	No	83	2,233	62	54	67
Concrete Batch Plant	No	83	2,233	62	54	67
Gradall	No	83	2,233	62	54	67
Warning Horn	No	83	2,233	62	54	67
Dozer	No	82	1,990	61	54	66
Grapple (on backhoe)	No	82	1,990	61	54	66
Vacuum Street Sweeper	No	82	1,990	61	54	66
Concrete Pump Truck	No	81	1,774	61	53	65
Crane	No	81	1,774	61	53	65
Excavator	No	81	1,774	61	53	65
Generator	No	81	1,774	61	53	65
Pumps	No	81	1,774	61	53	65

Rock Drill	No	81	1,774	61	53	65
Bar Bender	No	80	1,581	60	53	64
Drum Mixer	No	80	1,581	60	53	64
Roller	No	80	1,581	60	53	64
Slurry Trenching Machine	No	80	1,581	60	53	64
Soil Mix Drill Rig	No	80	1,581	60	53	64
Vibratory Concrete Mixer	No	80	1,581	60	53	64
Concrete Mixer Truck	No	79	1,409	60	53	63
Drill Rig Truck	No	79	1,409	60	53	63
Front End Loader	No	79	1,409	60	53	63
Ventilation Fan	No	79	1,409	60	53	63
Backhoe	No	78	1,255	60	53	62
Compactor (ground)	No	78	1,255	60	53	62
Slurry Plant	No	78	1,255	60	53	62
Paver	No	77	1,119	59	52	61
Dump Truck	No	76	997	59	52	60
Man Lift	No	75	889	58	52	59
Pickup Truck	No	75	889	58	52	59
Welder/Torch	No	74	792	58	52	58
Refrigerator Unit	No	73	706	57	52	57

*5 dB reduction for impact noise levels per Laguna Woods/Laguna Hills Noise Ordinance
Source: Adapted From Roadway Construction Noise Model User's Guide (FHWA, 2006), URS Corporation

The data shown in Table 6 indicates that noise levels from construction activities along Moulton Parkway exceed the nighttime criterion noise level of 50 dBA at all sensitive receptor locations and mitigation measures are required.

1.7 Potential Mitigation Measures

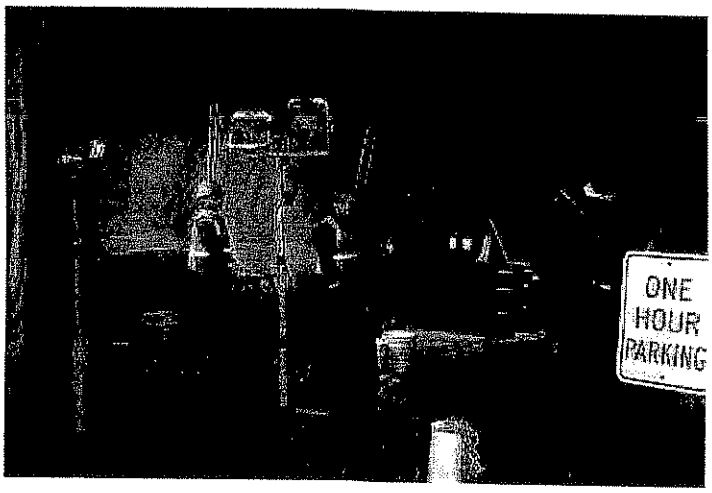
The three main sensitive receptor locations in the vicinity of the proposed project are the residential area along the south side of Santa Maria Avenue just west of Moulton Parkway (LT-2), the residential area along the south side of Ridge Route Drive just west of Moulton Parkway (ST-10), and the residential area on the southeast side of El Toro Road and Moulton Parkway behind Vons grocery store (LT-4).

Source mitigation can be an important component of reducing the noise that reaches sensitive receivers in these critical areas. Each piece of construction equipment should be fitted with efficient, well-maintained mufflers that reduce equipment noise emissions. Sound path mitigation, in the form of acoustic blankets located near the source should also be used. Acoustic blankets have the ability to reduce the sound levels by 10 dBA at the site of the piece of construction equipment if line-of-sight is blocked from the receiver. Figures 7 and 8 are photographs of example projects where acoustic blankets/panels have been used. Additional information is available at the Environmental Noise Control website (www.environmental-noise-control.com).

FIGURE 7. Noise Blanket as Barrier Wall

Source: Environmental Noise Control Inc.

FIGURE 8. Noise Blanket at Noise Source



Source: Environmental Noise Control Inc.

Table 7 provides the sound levels of construction equipment at a distance of 50 feet if acoustic blankets are used as well as the distances at which the levels would equal 50 dBA (45 dBA for impact noise equipment). Table 7 also lists each piece of equipment and the predicted noise levels for all three critical areas if the acoustic blankets are used to mitigate noise at the site of construction. The predicted noise levels are derived from data collected at each critical area with the 10 dBA acoustic blanket sound level attenuation applied.

TABLE 7

RCNM Default Noise Emission Reference Levels and Predicted Noise Levels (with Acoustic Blankets at Construction Site)

Equipment Description	Impact Device?	Attenuated Source Noise Level Lmax @ 50ft (dBA, slow)	Distance At Which Level = 50 dBA/45 dBA for Impact Noise* (in Feet)	Predicted Noise Level (in dBA): Resident at LT-2 (3108 Via Serena)	Predicted Noise Level (in dBA): Resident at LT-4 (948 Calle Aragon)	Predicted Noise Level (in dBA): Resident at ST-10 (Along Ridge Route Drive)
Sand Blasting (single nozzle)	No	86	3,154	63	54	70
Sheers (on backhoe)	No	86	3,154	63	54	70
Hydra Break Ram	Yes	80	2,811	60	53	64
Mounted Impact Hammer (hoe ram)	Yes	80	2,811	60	53	64
Jackhammer	Yes	79	2,505	60	52	63
Clam Shovel (dropping)	Yes	77	1,990	59	52	61
Concrete Saw	No	80	1,581	60	53	64
Pavement Scarifier	No	80	1,581	60	53	64
Vibrating Hopper	No	77	1,119	59	52	61
All Other Equipment > 5 HP	No	75	889	58	52	59
Compressor (air)	No	75	889	58	52	59
Generator(<25KVA, VMS Signs)	No	75	889	58	52	59
Grader	No	75	889	58	52	59
Horizontal Boring Hydraulic Jack	No	75	889	58	52	59
Pneumatic Tools	No	75	889	58	52	59
Vacuum Excavator (Vac-Truck)	No	75	889	58	52	59
Auger Drill Rig	No	74	792	58	52	58
Chain Saw	No	74	792	58	52	58
Flat Bed Truck	No	74	792	58	52	58
Rivet Buster/Chipping Gun	Yes	69	792	56	51	58
Scraper	No	74	792	58	52	58
Tractor	No	74	792	58	52	58
Boring Jack Power Unit	No	73	706	57	52	57
Concrete Batch Plant	No	73	706	57	52	57
Gradall	No	73	706	57	52	57
Warning Horn	No	73	706	57	52	57
Dozer	No	72	629	57	51	56
Grapple (on backhoe)	No	72	629	57	51	56
Vacuum Street Sweeper	No	72	629	57	51	56
Concrete Pump Truck	No	71	561	57	51	55
Crane	No	71	561	57	51	55
Excavator	No	71	561	57	51	55

Generator	No	71	561	57	51	55
Pumps	No	71	561	57	51	55
Rock Drill	No	71	561	57	51	55
Bar Bender	No	70	500	56	51	54
Drum Mixer	No	70	500	56	51	54
Roller	No	70	500	56	51	54
Slurry Trenching Machine	No	70	500	56	51	54
Soil Mix Drill Rig	No	70	500	56	51	54
Vibratory Concrete Mixer	No	70	500	56	51	54
Concrete Mixer Truck	No	69	445	56	51	53
Drill Rig Truck	No	69	445	56	51	53
Front End Loader	No	69	445	56	51	53
Ventilation Fan	No	69	445	56	51	53
Backhoe	No	68	397	55	51	52
Compactor (ground)	No	68	397	55	51	52
Slurry Plant	No	68	397	55	51	52
Paver	No	67	354	55	50	51
Dump Truck	No	66	315	55	50	50
Man Lift	No	65	281	54	50	49
Pickup Truck	No	65	281	54	50	49
Welder/Torch	No	64	250	54	50	48
Refrigerator Unit	No	63	223	53	50	47

*5 dB reduction for impact noise levels per Laguna Woods/Laguna Hills Noise Ordinance
Sourpted From Roadway Construction Noise Model User's Guide (FHWA, 2006), URS Corporation

The data shown in Table 7 indicate that mitigated exterior noise levels will exceed 50 dBA at the sensitive receptor locations. Column four of Table 7 indicates the source to receiver distances required for noise levels to meet 50 dBA. If the respective construction activities are conducted beyond these distances from critical receiver locations, exterior noise levels will not exceed 50 dBA at the sensitive receivers. Construction activities conducted closer to sensitive receptor locations than the distances specified in Table 7 should be conducted after 7:00 a.m. and prior to 10:00 p.m.

The levels shown in Table 7 reflect exterior noise levels. The most critical criterion for nighttime noise is the propensity for noise to interfere with human activities such as communication interference (watching television) or sleep disturbance. Orange County, Laguna Hills, Laguna Woods, as well as many federal and international agencies, such as the World Health Organization, have specified a nighttime interior standard of 45 dBA. It is reasonable to assume, based on the construction type of the nearby residential dwellings, that an outdoor to indoor sound attenuation of 20 dBA can be achieved at these residences when the windows are closed. This indicates that although the exterior noise standards may be exceeded during periods when construction occurs at distances closer than those shown in Table 7, the noise from construction activities are not expected to interfere with interior activities such communication or sleep.

It is important to note that construction activities at a given location result in a short-term temporary increase in noise levels. Based on the noise levels and short-term nature of the construction activities, noise impacts from nighttime construction activity are less than significant.

Although noise impacts from nighttime construction activities associated with the proposed project are less than significant, it is advisable to implement a noise mitigation and community outreach plan. The purposes of these plans are to ensure that recommended noise mitigation measures are implemented and residents are notified of the hours, duration, and of length of construction activity when exterior noise levels may approach or exceed 50 dBA. A mechanism for community feedback, such as a noise complaint hotline should be incorporated. If significant complaints are received, the activities causing the complaints should be rescheduled to daytime hours if possible. If rescheduling these activities is not possible, short-term noise monitoring and supplemental mitigation measures such as acoustical blankets at the receiver should be considered.

Given that the construction activity is limited to nighttime periods, another potential mitigation measure is for the local jurisdictions to temporarily waive the nighttime exterior noise standard of 50 dBA in recognition that few, if any, exterior activities, occur during this time. The interior noise standard of 45 dBA would be used in lieu of the exterior standard. Typical residential construction conservatively attenuates noise by approximately 20 dBA with windows closed and by 12-15 dBA with windows open. This indicates that a maximum exterior noise level of 65 dBA would yield an interior noise level of 45 dBA with windows closed and 50-53 dBA with windows open. The distances required to achieve 65 dBA exterior noise level are shown in Table 8.

TABLE 8

RCNM Default Noise Emission Reference Levels and Predicted Noise Levels (65 dBA Exterior Standard)

Equipment Description	Impact Device?	Actual Measured Lmax at 50ft (dBA, slow)	Distance At Which Level = 65 dBA*	Predicted Noise Level (in dBA): Resident at LT-2 (Along Santa Maria Avenue)	Predicted Noise Level (in dBA): Resident at LT-4 (948 Calle Aragon)	Predicted Noise Level (in dBA): Resident at ST-10 (Along Ridge Route Drive)
Sand Blasting (single nozzle)	No	96	1,774.1	67	56.4	80 dBA
Sheers (on backhoe)	No	96	1,774.1	67	56.4	80 dBA
Hydra Break Ram	Yes	90	1,581.1	64	55.1	74 dBA
Mounted Impact Hammer (hoe ram)	Yes	90	1,581.1	64	55.1	74 dBA
Jackhammer	Yes	89	1,409.2	64	54.9	73 dBA
Clam Shovel (dropping)	Yes	87	1,119.4	63	54.5	71 dBA
Concrete Saw	No	90	889.1	64	55.1	74 dBA
Pavement Scarifier	No	90	889.1	64	55.1	74 dBA
Vibrating Hopper	No	87	629.5	63	54.5	71 dBA
All Other Equipment > 5 HP	No	85	500.0	62	54.1	69 dBA
Compressor (air)	No	85	500.0	62	54.1	69 dBA
Generator(<25KVA, VMS Signs)	No	85	500.0	62	54.1	69 dBA

Grader	No	85	500.0	62	54.1	69 dBA
Horizontal Boring Hydraulic Jack	No	85	500.0	62	54.1	69 dBA
Pneumatic Tools	No	85	500.0	62	54.1	69 dBA
Vacuum Excavator (Vac-Truck)	No	85	500.0	62	54.1	69 dBA
Auger Drill Rig	No	84	445.6	62	53.9	68 dBA
Chain Saw	No	84	445.6	62	53.9	68 dBA
Flat Bed Truck	No	84	445.6	62	53.9	68 dBA
Rivet Buster/Chipping Gun	Yes	79	445.6	60	52.8	63 dBA
Scraper	No	84	445.6	62	53.9	68 dBA
Tractor	No	84	445.6	62	53.9	68 dBA
Boring Jack Power Unit	No	83	397.2	62	53.7	67 dBA
Concrete Batch Plant	No	83	397.2	62	53.7	67 dBA
Gradall	No	83	397.2	62	53.7	67 dBA
Warning Horn	No	83	397.2	62	53.7	67 dBA
Dozer	No	82	354.0	61	53.5	66 dBA
Grapple (on backhoe)	No	82	354.0	61	53.5	66 dBA
Vacuum Street Sweeper	No	82	354.0	61	53.5	66 dBA
Concrete Pump Truck	No	81	315.5	61	53.2	65 dBA
Crane	No	81	315.5	61	53.2	65 dBA
Excavator	No	81	315.5	61	53.2	65 dBA
Generator	No	81	315.5	61	53.2	65 dBA
Pumps	No	81	315.5	61	53.2	65 dBA
Rock Drill	No	81	315.5	61	53.2	65 dBA
Bar Bender	No	80	281.2	60	53.0	64 dBA
Drum Mixer	No	80	281.2	60	53.0	64 dBA
Roller	No	80	281.2	60	53.0	64 dBA
Slurry Trenching Machine	No	80	281.2	60	53.0	64 dBA
Soil Mix Drill Rig	No	80	281.2	60	53.0	64 dBA
Vibratory Concrete Mixer	No	80	281.2	60	53.0	64 dBA
Concrete Mixer Truck	No	79	250.6	60	52.8	63 dBA
Drill Rig Truck	No	79	250.6	60	52.8	63 dBA
Front End Loader	No	79	250.6	60	52.8	63 dBA
Ventilation Fan	No	79	250.6	60	52.8	63 dBA
Backhoe	No	78	223.3	60	52.6	62 dBA
Compactor (ground)	No	78	223.3	60	52.6	62 dBA
Slurry Plant	No	78	223.3	60	52.6	62 dBA
Paver	No	77	199.1	59	52.4	61 dBA
Dump Truck	No	76	177.4	59	52.2	60 dBA
Man Lift	No	75	158.1	58	52.0	59 dBA

Pickup Truck	No	75	158.1	58	52.0	59 dBA
Welder/Torch	No	74	140.9	58	51.8	58 dBA
Refrigerator Unit	No	73	125.6	57	51.6	57 dBA

*5 dB reduction for impact noise levels per Laguna Woods/Laguna Hills Noise Ordinance

The data shown in Table 8 indicates that all but the loudest construction activities would meet the 65 dBA exterior noise standard (45 dBA interior with windows closed) for Sites LT-2 and LT-4. The exceptions are the residences located along Ridge Route Drive in the vicinity of ST-10. Noise levels as high as 80 dBA may be experienced in this area. Site specific mitigation in the form of acoustic barriers are needed at this location in order to meet the exterior standard of 65 dBA. Barriers 13.5 feet high and approximately 110 feet in length, sufficient to block the line-of-sight from the northeast corner of the community to the intersection of Ridge Route Drive and Moulton Parkway, are required. These barriers should be of plywood construction, 1.25 inches thick, and would provide 15 dBA of attenuation and ensure compliance with the interior noise standard at these locations.

Other mitigation measures incorporated into the project should include that equipment staging and crew break areas should be located away from residences and vehicles equipped with audible back-up signals should set the signals to the lowest allowable audible setting.

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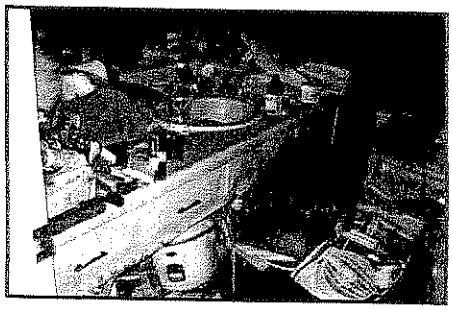
Public Safety Committee 6/10/09

CITY OF LAGUNA WOODS

Introduction to Hoarding



What is Hoarding?

- The acquisition of, and failure to discard of, a large number of possessions that appear to be useless or of limited value.
- Living or work spaces sufficiently cluttered so as to preclude activities for which those spaces were designed.
- Significant distress or impairment in functioning caused by the hoarding behavior.

Adapted from Frost & Hartl, 1996

Reasons for Hoarding

- "... represents a complex set of psychological, physical, and sociological factors..."

  Norma D. Thomas, Journal of Gerontological Social Work

- Items are perceived as valuable
- Items provide a sense of security or love
- Fear others will obtain their personal information
- Physical limitations
- Stressful life events

Adapted from the LA County Department of Mental Health

Potential Consequences

- SOCIAL
  - Debt
  - Loss of job
  - Family hostility
  - Loss of tenancy
  - Diminished functioning
- PHYSICAL/MEDICAL
  - Fires
  - Slips, trips and falls
  - Bodily harm (e.g., falling objects)
  - Headaches
  - Respiratory problems
  - Allergies
  - Fatigue/lethargy
  - Insomnia
  - Gastrointestinal problems
  - Infectious diseases
  - Death

Experience in Laguna Woods

- Two incidents in the past twelve months
- Both required multi-agency coordination and multi-level response
  - City of Laguna Woods
  - Orange County Fire Authority
  - Orange County Sheriff's Department
  - Orange County Health Care Agency
  - PCM – Social Services & Security
- The City's role was primarily resource and referral; no enforceable violations were identified

Current Strategies

- **Orange County Task Force on Hoarding**

A collaboration of diverse community organizations and representatives who seek to impact hoarding.

Goals:

- Identify and understand the issues, difficulties and causes of human hoarding behavior
- Develop and maximize resources
- Develop humane and innovative interventions
- Educate the public and service providers

Current Strategies

- **Orange County Task Force on Hoarding**

Values and Core Beliefs:

- Hoarding requires an individual and community response
- Service providers should be aware of the variety of community responders and work as a team
- Service providers should be knowledgeable of hoarding characteristics and methods to effect positive change
- Involuntary interventions should only occur as a result of severe health and safety issues. Health clinicians should always be involved.

Current Strategies

- **Resource and referral**
  - Centralize educational/assistance materials and contacts
  - Raise awareness through outreach and education
- **Intervene when possible**
  - City of Laguna Woods
  - Orange County Fire Authority
  - Orange County Sheriff's Department
  - Orange County Health Care Agency
  - Laguna Beach Animal Shelter
  - Social services, residential communities, etc.

Possible Triggers for City Intervention

- **Property maintenance code violations**
  - Damaged or defective building exteriors
  - Accumulation of dirt, litter or debris in vestibules, doorways or the adjoining sidewalks of buildings
  - Lumber, junk, trash, tires, debris or salvage materials visible from a public street, alley or adjoining property
  - Maintenance of property in such condition as to be detrimental to public health, safety or welfare
  - Fire, plumbing, mechanical, and electrical codes, however the City has no ability to enter private homes without permission, absent legal proceedings

Possible Triggers for City Intervention

- **Uniform Housing Code violations**
  - Building-related conditions that are dangerous to human life or detrimental to human health
  - Inadequate plumbing facilities
    - At least one toilet must work
  - Lack of hot and cold water to plumbing fixtures
  - Uncleanliness, as determined by the Health Officer
  - Insect, vermin, or rodent infestation
  - Conditions that render air, food, or drink unwholesome or detrimental to the health of human beings

Possible Triggers for City Intervention

- **Other violations**
  - The Building Code and California Fire Code contain provisions that might allow the Orange County Fire Authority to intervene under certain circumstances

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VOLUNTARY COMPLIANCE **or**

NUISANCE ABATEMENT PROCESS **or**

REASONABLE CAUSE →

DOCUMENTATION →

COURT-ISSUED INSPECTION WARRANT

Challenges

- Difficulty identifying hoarders
  - Many live alone and lead private lives
  - Come from all socioeconomic backgrounds
  - Generally mentally competent
  - Often fail to recognize the problem
  - Reasonable cause is required for forcible intervention
- Complexity of the issues involved
  - Psychological, physical, sociological, elder abuse, public health
  - Multi-level response and multi-agency coordination is required
  - Simply cleaning does **not** solve the problem

Challenges

- Tension between public and private rights
- Staff time and cost involved
  - Response, coordination, and legal proceedings
  - Follow-up is important to prevent recidivism
- Aggressive enforcement may compound the problem – *voluntary compliance is highly preferable*

"The person who moves a mountain begins by carrying away small stones"

Next Steps

- **City of Laguna Woods**
  - Convene local response task force
    - Define agency roles and abilities
    - Establish a standard response protocol
    - Identify deficiencies and consider solutions
- **Public Safety Committee**
  - Identify opportunities for public education and outreach
  - Provide additional feedback to staff