BOARD OF ZONING ADJUSTMENT APPLICATION

City of Columbus, Ohio • Department of Building & Zoning Services
757 Carolyn Avenue, Columbus, Ohio 43224 • Phone: 614-645-7433• www.columbus.gov

OFFICE USE ONLY

Application Number: #11311-00000-00493
Date Received: 6 SEPT. 2011
Commission/Group: SOUTH WEST AC
Existing Zoning: L-M (CPD) Application Accepted by: JF Fee: $1,900
Comments:

TYPE(S) OF ACTION REQUESTED
(Check all that apply)

☐ Variance ☑ Special Permit

PAID
SEP 06 2011
BUILDING & ZONING SERVICES

Indicate what the proposal is and list applicable code sections. State what it is you are requesting.

Applicant is requesting issuance of a special permit for operation of an outdoor amphitheater on the site of existing Cooper Stadium, as more fully described on attachment hereto.

LOCATION

1. Certified Address Number and Street Name 1155 W. Mound Street

City Columbus State Ohio Zip 43223

Parcel Number (only one required) 425-286329

APPLICANT: (IF DIFFERENT FROM OWNER)

Name King Holding Corporation

Address 107 S. High Street, Suite 300 City/State Columbus, Ohio Zip 43215

Phone # 463-9730 Fax # 463-1896 Email jsugar@arshot.com

PROPERTY OWNER(S):

Name Board of Commissioners for Franklin County, c/o COCIC

Address P.O. Box 6355 City/State Columbus, Ohio Zip 43206

Phone # 445-7342 Fax # 449-7970 Email

☐ *Check here if listing additional property owners on a separate page.*

ATTORNEY / AGENT (CHECK ONE IF APPLICABLE) ☑ Attorney ☐ Agent

Name Zeiger, Tigges & Little, by John W. Zeiger, Esq.

Address 3500 Huntington Center, 41 S. High St. City/State Columbus, Ohio Zip 43215

Phone # 365-9900 Fax # 365-7900 Email: zeiger@litohio.com

SIGNATURES (ALL SIGNATURES MUST BE PROVIDED AND SIGNED IN BLUE INK)

APPLICANT SIGNATURE Sec/Treas.
PROPERTY OWNER SIGNATURE John W. Eshpe
ATTORNEY / AGENT SIGNATURE John W. Zeiger

PLEASE NOTE: incomplete information will result in the rejection of this submittal.
For all questions regarding this form and fees please call: 614-645-4522
Please make all checks payable to the Columbus City Treasurer

Revised 02/01/11

CITY OF COLUMBUS

DEPARTMENT OF BUILDING AND ZONING SERVICE

One Stop Shop Zoning Report Date: Tue Sep 6 2011

Zoning General Inquiry: 614-645-8637

SITE INFORMATION

Address: 1155 W MOUND ST FRANKLIN TOWNSHIP OH 43223
Mailing Address: 373 S HIGH ST 26TH FLR
COLUMBUS, OH 43215-4591

Owner: FRANKLIN COUNTY COMM COUNTY S
Parcel Number: 425286329

ZONING INFORMATION

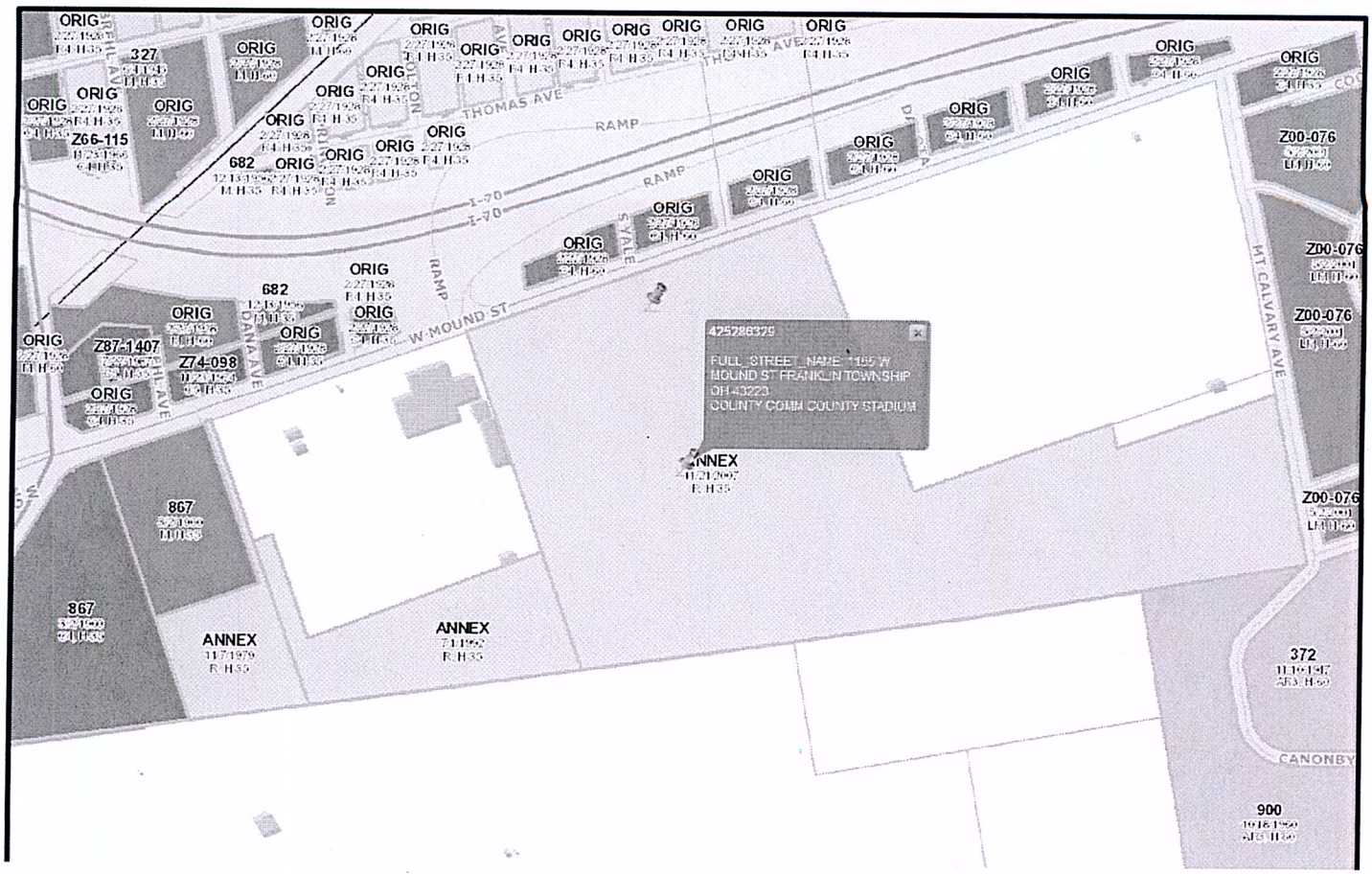
Zoning: ANNEX, Residential, R
effective 11/21/2007, Height District H-35
Council Variance: N/A
Board of Zoning Adjustment (BZA): N/A
Graphic Commission: N/A
Area Commission: Southwest Area Commission
Planning Overlay: N/A

Historical District: N/A
Historical Site: No
Overlay: N/A
Flood Zone: OUT
Airport Noise Environ: N/A

PENDING ZONING ACTION

Zoning: N/A
Board of Zoning Adjustment (BZA): N/A

Council Variance: N/A
Graphic Commission: N/A



BZA Application
Request for Special Permit
Signature of Property Owner
1155 W. Mound Street (43223)

Owner: Board of Commissioners for Franklin County
c/o Central Ohio Community Improvement Corporation

Applicant: King Holding Corporation
c/o Zeiger, Tigges & Little

Signature of Property Owner

The following signature block is provided to supplement the BZA Application, so as to include all pertinent information regarding the party authorized to sign on behalf of the property owner, the Board of Commissioners for Franklin County.

Board of Commissioners for Franklin County
c/o Central Ohio Community Improvement Corporation, its Authorized Agent

By: _____
Reverend John Edgar, COCIC Board Chairperson

Date: 9/1, 2011

Contact Information for Authorized Agent:

Reverend John Edgar, Board Chairperson
Central Ohio Community Improvement Corporation
P.O. Box 6355
Columbus, Ohio 43206
Ph: (614) 445-7342
Fax: (614) 449-7970

BZA Application
Request for Special Permit
Description of Proposal
1155 W. Mound Street (43223)

King Holding Corporation ("Applicant"), through conducting an open and collaborative process with area leaders, has previously received the unanimous approval of each governmental entity it has petitioned, including the Southwest Area Commission, the Columbus Development Commission and Columbus City Council, to construct a state-of-the-art automotive research center and paved track facility ("Cooper Park") on the site of the former Cooper Stadium located at 1155 W. Mound Street, Columbus, Ohio 43223 (the "Stadium").

In obtaining these unanimous zoning approvals, Applicant has voluntarily made numerous commitments designed to alleviate any perceived detrimental effects of Cooper Park on the surrounding neighborhood. Specifically, Applicant proposed and agreed to the following provisions, which are made part of the approved zoning legislation passed unanimously on June 27, 2011 by Columbus City Council:

- Before holding any event in the facility which is anticipated to generate external noise levels exceeding ambient conditions in the neighborhood ("Event"), sound walls with a specified minimum height ranging from 25' to 35' and a noise reduction coefficient of 0.75 or greater shall be constructed around the perimeter of the facility and along the southern property line of the site.

- No Event which is a racing competition involving multiple motorized vehicles may be held in the facility between the hours of 10:00 p.m. and 7:00 a.m.

In addition to these preventative measures, Applicant voluntarily entered into a Good Neighbor Agreement with the Southwest Civic Association (the "SWCA") providing in relevant parts:

- Applicant will provide the managers of Green Lawn Cemetery and Mt. Calvary Cemetery advance notice of any Event to be held at Cooper Park to ensure coordinated scheduling of burial services.

- Applicant will conduct noise monitoring during any Event, in order to ensure that the noise levels generated by the Events are in compliance with the limits established by Section 2329.11(B)(1) of the Columbus City Code ("City Code"). Noise monitoring measurements will be documented and promptly made available to the SWCA.

- In the event that a noise violation occurs, Applicant has voluntarily agreed to pay a fine, ranging from $3,000 to $20,000 depending on the number of violations and the number of decibels by which the City Code limit is exceeded, to a charitable foundation established for the benefit of the Southwest and Franklinton areas.

- In addition to the fines, Applicant has agreed that if noise levels generated by an Event are in violation of the limits established by City Code Section 2329.11(B)(1), Applicant will make adjustments to Cooper Park and/or its programming of Events as reasonably anticipated to avoid any such violations in the future.

These measures voluntarily undertaken by Applicant are unprecedented, especially where Applicant is only seeking to operate Cooper Park in accordance with the now-existing City Code noise ordinance. It must be noted that no other amphitheater operating within the city limits has offered to, or been required to, provide noise abatement measures of this magnitude. Outdoor events, including amplified concerts, are regularly held at LC Pavilion, Huntington Park, Columbus Commons, Crew Stadium and Bicentennial Park. Of these facilities, only LC Pavilion makes use of any sound walls, and those sound walls are extremely modest compared to the massive sound wall system designed for Cooper Park.

In addition to the self-policing noted above, Applicant is also installing sound walls at Cooper Park which were designed by Harris Miller Miller & Hanson ("HMMH") using state-of-the-art computer modeling to determine noise impacts. HMMH was selected for Applicant by a committee of county, city and neighborhood representatives, after a nationwide request for proposal ("RFP") process, as one of three firms best qualified to conduct the required noise study. The selection was based on HMMH's demonstrated expertise in conducting balanced community noise surveys, several of which related specifically to motorsport facilities.

In its study (copy enclosed) HMMH concluded that, with the construction of sound walls, noise levels generated by race events at Cooper Park may be effectively managed to comply with the City of Columbus residential noise ordinance, which is consistent with the standard established by the EPA. This is significant because ambient noise levels in the vicinity of Cooper Park, which is situated immediately adjacent to I-70 at its intersection with I-71, are already in excess of the City's limit for residential areas during daytime hours.

Applicant has obtained all of the approvals necessary to build and operate both the research and development center and the track facility. Applicant now seeks a special permit pursuant to Section 3389.087 of the City Code to operate a portion of Cooper Park as an outdoor amphitheater.

The term "outdoor amphitheater" is defined in City Code Section 3303.15 to mean an open-faced structure or building intended to accommodate patrons in tiered seating. The proposed outdoor amphitheater at Cooper Park will simply be a preserved portion of the existing Stadium to be used for spectator events. The existing Stadium is an open-faced structure with current capacity for approximately 16,500 patrons in tiered seating. As redeveloped, Cooper Park's seating capacity will be reduced to approximately 8,500.

The proposed use of Cooper Park as an "outdoor amphitheater" will not be a new use. In fact, the Stadium has been used to accommodate patrons in tiered seating since 1931. Over the course of its 80-year history, in addition to serving as the home field of the Columbus Red Birds, the Columbus Jets and the Columbus Clippers (70+ games per year), the Stadium hosted a great number of other public events, including, but not limited to, rock-n-roll concerts, fireworks and

the other events set forth on Exhibit A. In addition to these events, the parking lots surrounding the Stadium are often used to stage amateur auto races and to train public employees such as snow plow drivers and motorcycle troopers. As recently as August 13, 2011, the Central Ohio Transit Authority held a bus driving competition in the parking lots.

The use of Cooper Park for spectator events, as redeveloped, will not be a detriment to the surrounding area. In fact, just the opposite is true; Cooper Park will be nothing but a positive for the surrounding area. This has indeed been echoed by the Southwest Area Commission which in its letter unanimously supporting Cooper Park recognized that the "proposed redevelopment of the Cooper Stadium site will be the catalyst for positive potential growth." The jobs that area residents once held while Cooper Stadium was operational will once again be viable opportunities for residents. Both the research and development component of the project and spectator events will spur economic development for surrounding businesses that would otherwise not exist.

In contrast, there are no negatives to Cooper Park as Applicant has already undertaken a sound study ensuring compliance with the City Code and ambient noise conditions in the area. Applicant has also undertaken a traffic impact study ("TIS"), notwithstanding a seating capacity reduction of nearly 50%. The TIS has been approved by the City of Columbus Department of Public Service and the recommendations set forth in the TIS have been incorporated as commitments in the approved zoning legislation. At bottom, the reintroduction of spectator events at Cooper Park is nothing but positive for the surrounding community.

Based on all of the foregoing factors, Applicant proposes to continue use of the Stadium property as a venue for spectator events, including motorsport events, and requests the BZA to grant Applicant the special permit required to use tiered seating at Cooper Park.

EXHIBIT A

Aerosmith
America
B97 Concert Series
Billy Graham (drew over 150,000 in 1993)
Bob Dylan
Carnivals with amusement rides
Chubby Checker
Def Leopard
Destiny's Child
Digital Underground
Eric Clapton
Festival of the Children
Firefighters Concert Series
Fireworks after EVERY winning home game
Foreigner
Frankie Valli & The Four Seasons
Garth Brooks (6 nights)
High school baseball
High school football (with marching bands)
Jimmie Vaughan
Leann Rimes
McGuffey Lane
MC Lyte
Michael Bolton
Multiple bands before many home games
Naughty by Nature
Ohio high school marching band competitions
Phil Dirt & The Dozers
Red, White & Boom (live band concerts as well as fireworks)
REO Speedwagon
Rush
Slick Rick
Terror Park
The Beach Boys
The Charlie Daniels Band
The Doobie Brothers
The Judds
The Turtles

Mayor Michael B. Coleman

BOARD OF ZONING ADJUSTMENT APPLICATION

City of Columbus, Ohio ▪ Department of Building & Zoning Services
757 Carolyn Avenue, Columbus, Ohio 43224 ▪ Phone: 614-645-7433▪ www.columbus.gov

AFFIDAVIT

STATE OF OHIO
COUNTY OF FRANKLIN

Being first duly cautioned and sworn **(1)** NAME Eric J. Zartman
of **(1)** MAILING ADDRESS 500 S. Front St., Ste. 1200, Columbus, Ohio 43215
deposed and states that (he/she) is the applicant, agent, or duly authorized attorney for same and the following is a list of the name(s) and mailing address(es) of all the owners of record of the property located at
(2) per ADDRESS CARD FOR PROPERTY 1155 Mound Street
for which the application for a rezoning, variance, special permit or graphics plan was filed with the Department of Building and Zoning Services, on **(3)** _____
(THIS LINE TO BE FILLED OUT BY CITY STAFF)

SUBJECT PROPERTY OWNERS NAME AND MAILING ADDRESS
(4) Board of Commissioners for Franklin County
~~c/o Central Ohio Community Improvement~~ Corp.
Post Office Box 6355
Columbus, Ohio 43206

APPLICANT'S NAME AND PHONE #
(same as listed on front of application)
King Holding Corp., c/o John W. Zeiger
614.365.4101

AREA COMMISSION OR CIVIC GROUP
AREA COMMISSION ZONING CHAIR OR
CONTACT PERSON AND ADDRESS
(5) Southwest Area Commission
c/o Stefanie Coe
Post Office Box 1364
Grove City, Ohio 43123

and that the following is a list of the **names** and **complete mailing addresses**, including **zip codes**, as shown on the **County Auditor's Current Tax List or the County Treasurer's Mailing List**, of all the **owners of record of property within 125 feet** of the exterior boundaries of the property for which the application was filed, **and** all of the owners of any property within 125 feet of the applicant's or owner's property in the event the applicant or the property owner owns the property contiguous to the subject property:

(6) PROPERTY OWNER(S) NAME (6A) ADDRESS OF PROPERTY (6B) PROPERTY OWNER(S) MAILING ADDRESS
See Attached

☒ **(7)** Check here if listing additional property owners on a separate page.

SIGNATURE OF AFFIANT **(8)** Eric J Zartman

Subscribed to me in my presence and before me this 24th day of August, in the year 2011

SIGNATURE OF NOTARY PUBLIC **(8)** Carol A. Stewart

My Commission Expires:

NOTARIAL SEAL
Notary Seal Here
STATE OF OHIO

CAROL A. STEWART
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES 06/28/2014

PLEASE NOTE: incomplete information will result in the rejection of this submittal.
For all questions regarding this form and fees please call: 614-645-4522
Please make all checks payable to the Columbus City Treasurer

Revised 02/01/11

West Edge Market Place LLC
735 Euclaire Ave
Columbus, Ohio 43222

Diane E Emich, TR
740 Canoby Place
Columbus, Ohio 43223

Rashid Inc
1102 W. Mound Street
Columbus, Ohio 43223

John Vlahos
10085 Wellington Blvd.
Powell, Ohio 43065

RJ Tire Service
c/o Jesse Wells
1056 W. Mound Street
Columbus, Ohio 43223

Larry L. Taylor TR
9171 Taylor Road
Orient, Ohio 43146

CORRELOGIC
Attn: Karen Lyone
2500 Westfield Dr., Ste. 102
Elgin, IL 60124

Hetzler Family LP
2548 S. Kathwood Circle
Cincinnati, Ohio 45236

Realty Income Properties
1 LLC
600 LaTerraza Blvd
Escondido, CA 92025

Columbus Paper Box
Company Inc.
Post Office Box 23056
Columbus, Ohio 43223

City of Columbus Land Bank
109 N. Front Street
Columbus, Ohio 43215-9006

TTG Properties LLC
c/o Sunbelt Rentals
2341 Deerfield Drive
Fort Mill, SC 29715

Sinclair Media 2 INC
Post Office Box 1475
Cockeysville, MD 21030

The Most Reverend
Bishop Frederic Campbell
198 E. Broad Street
Columbus, Ohio 43215

Temple Israel
5419 E. Broad Street
Columbus, Ohio 43213

Green Lawn Cemetery Assoc.
1000 Greenlawn Ave
Columbus, Ohio 43223

Franklin County Commissioners
373 S. High Street
26th Floor
Columbus, Ohio 43215-4591

Frank A. Ray
175 S. Third Street, Ste. 350
Columbus, Ohio 43215

OWNER

Franklin County Commissioners
c/o COCIC
Post Office Box 6355
Columbus, Ohio 43206

APPLICANT

King Holding Corporation
107 S. High Street, 3rd Floor
Columbus, Ohio 43215

John w. Zeiger
Zeiger, Tigges & Little, LLP
3500 Huntington Center
Columbus, Ohio 43215

AREA COMMISSION

Southwest Area Commission
Attn: Stefanie Coe
Post Office Box 1364
Grove City, Ohio 43123

CLARENCE E. MINGO II
FRANKLIN COUNTY AUDITOR

Report of parcels touching irregular area DATE : AUG 23, 2011

010-005683 * Owner: WEST EDGE MARKET PLACE LLC
Address: 1082 W MOUND ST
Mail To: WEST EDGE MARKET PLACE
: LLC
: 735 EUCLAIRE AVE
: COLUMBUS OH 43222
: COLUMBUS OH 43222

010-008257 * Owner: WECARE HEALTH FACILITY
Address: 740 CANONBY PL
Mail To: DIANE E EMICH TR
: 740 CANONBY PL
: COLUMBUS OH 43223

010-022737 * Owner: RASHID INC
Address: 1102 W MOUND ST
Mail To: RASHID INC
: 1102 W MOUND ST
: COLUMBUS OH 43223

010-027110 * Owner: VLAHOS JOHN J TR
Address: 1192 W MOUND ST
Mail To: JOHN VLAHOS
: 10085 WELLINGTON BLVD
: POWELL, OH 43065

010-027406 * Owner: RJ TIRE SERVICE
Address: W MOUND ST
Mail To: RJ TIRE SERVICE
: C/O JESSE WELLS
: 1056 W MOUND ST
: COLUMBUS OH 43223

010-029693 * Owner: TAYLOR LARRY L TR
Address: 1176 W MOUND ST
Mail To: LARRY L TAYLOR TR
: 9171 TAYLOR RD
: ORIENT OH 43146

010-029695 * Owner: TAYLOR LARRY L TR
Address: 1166 W MOUND ST
Mail To: LARRY L TAYLOR TR
: 9171 TAYLOR RD
: ORIENT OH 43146

010-040441 * Owner: COLUMBUS METROPOLITAN HOUSING AUTHORITY
Address: 00750 -793 GREENFIELD DR
Mail To: CORELOGIC
: KAREN LYONS
: 2500 WESTFIELD DR STE 102
: ELGIN, IL 60124

CLARENCE E. MINGO II
FRANKLIN COUNTY AUDITOR

Report of parcels touching irregular area DATE : AUG 23, 2011

010-052219 * Owner: VLAHOS JOHN J
Address: W MOUND ST
Mail To: JOHN VLAHOS
: 10085 WELLINGTON BLVD
: POWELL, OH 43065

010-057139 * Owner: HETZLER FAMILY LP
Address: 1124 -50 W MOUND ST
Mail To: HETZLER FAMILY LP
: 2548 S KATHWOOD CIR
: CINCINNATI OH 45236

010-126650 * Owner: EMMA INVESTMENTS LLC
Address: 769 CANONBY PL
Mail To: CORELOGIC
: KAREN LYONS
: 2500 WESTFIELD DR STE 102
: ELGIN, IL 60124

010-187888 * Owner: VLAHOS JOHN J
Address: 1192 W MOUND ST
Mail To: JOHN VLAHOS
: 10085 WELLINGTON BLVD
: POWELL, OH 43065

010-222648 * Owner: REALTY INCOME PROPERTIES 1 LLC
Address: 1291 W MOUND ST
Mail To: REALTY INCOME PROPERTIES
: 1 LLC
: 600 LA TERRAZA BLVD
: ESCONDIDO CA 92025

010-263052 * Owner: COLUMBUS PAPER BOX COMPANY INC
Address: 595 VAN BUREN DR
Mail To: COLUMBUS PAPER BOX
: COMPANY INC
: PO BOX 23056
: COLUMBUS OH 43223

CLARENCE E. MINGO II
FRANKLIN COUNTY AUDITOR

Report of parcels touching irregular area DATE : AUG 23, 2011

010-284122 * Owner: CITY OF COLUMBUS OHIO
Address: VANBUREN DR
Mail To: CITY OF COLUMBUS
: LAND BANK
: 109 N FRONT ST
: COLUMBUS, OH 43215-9006

140-000195 * Owner: TTG PROPERTIES LLC
Address: 1325 W MOUND ST
Mail To: TTG PROPERTIES LLC
: C/O SUNBELT RENTALS
: 2341 DEERFIELD DR
: FORT MILL SC 29715

140-000205 * Owner: GREEN LAWN CEMETERY ASSOCIATION
Address: 1000 GREENLAWN AV
Mail To: SINCLAIR MEDIA 2 INC
: PO BOX 1475
: COCKEYSVILLE MD 21030

140-000244 * Owner: HERRMANN EDWARD J BISHOP
Address: MT CALVARY AV
Mail To: BISHOP JAMES GRIFFIN
: 198 E BROAD ST
: COLUMBUS, OH 43215-3702

The Most Reverend Bishop Frederick Campbell

140-000335 * Owner: TEMPLE ISRAEL
Address: MT CALVARY AV
Mail To: TEMPLE ISRAEL
: 5419 E BROAD ST
: COLUMBUS OH 43213

140-005069 * Owner: GREEN LAWN CEMETERY ASSOC
Address: GREENLAWN AV
Mail To: GREEN LAWN CEMETERY ASSOC
: 1000 GREENLAWN AVE
: COLUMBUS OH 43223

425-286326 * Owner: FRANKLIN COUNTY COMM COUNTY STADIUM
Address: W MOUND ST
Mail To: FRANKLIN COUNTY
: COMMISSIONERS
: 373 S HIGH ST 26TH FLR
: COLUMBUS, OH 43215-4591

CLARENCE E. MINGO II
FRANKLIN COUNTY AUDITOR

Report of parcels touching irregular area DATE : AUG 23, 2011

425-286327 * Owner: FRANKLIN COUNTY COMM COUNTY STADIUM
Address: MT CALVARY AV
Mail To: FRANKLIN COUNTY
: COMMISSIONERS
: 373 S HIGH ST 26TH FLR
: COLUMBUS, OH 43215-4591

425-286328 * Owner: BOARD OF COMMISSIONERS FOR FRANKLIN COUNTY
Address: 1215 W MOUND ST
Mail To: FRANK A RAY
: 175 S 3RD ST STE 350
: COLUMBUS OH 43215

425-286329 * Owner: FRANKLIN COUNTY COMM COUNTY STADIUM
Address: 1155 W MOUND ST
Mail To: FRANKLIN COUNTY
: COMMISSIONERS
: 373 S HIGH ST 26TH FLR
: COLUMBUS, OH 43215-4591

BOARD OF ZONING ADJUSTMENT APPLICATION

City of Columbus, Ohio • Department of Building & Zoning Services
757 Carolyn Avenue, Columbus, Ohio 43224 • Phone: 614-645-7433• www.columbus.gov

PROJECT DISCLOSURE STATEMENT

Parties having a 5% or more interest in the project that is the subject of this application.

THIS PAGE MUST BE FILLED OUT COMPLETELY AND NOTARIZED. Do not indicate 'NONE' in the space provided.

APPLICATION # _____

STATE OF OHIO
COUNTY OF FRANKLIN

Being first duly cautioned and sworn (NAME) John W. Zeiger, Esq.
of (COMPLETE ADDRESS) 3500 Huntington Center, Columbus, Ohio 43215
deposes and states that (he/she) is the APPLICANT, AGENT OR DULY AUTHORIZED ATTORNEY FOR SAME and the following is a list of all persons, other partnerships, corporations or entities having a 5% or more interest in the project which is the subject of this application and their mailing addresses:

NAME	COMPLETE MAILING ADDRESS
Board of Commissioners	c/o COCIC
for Franklin County	P.O. Box 6355, Columbus, Ohio 43206
King Holding Corporation	107 S. High Street, Suite 300, Columbus, Ohio 43215
(option to acquire)	

SIGNATURE OF AFFIANT John W. Zeiger

Subscribed to me in my presence and before me this 2nd day of September, in the year 2011

SIGNATURE OF NOTARY PUBLIC Janel Strickland

My Commission Expires: _____

Notary Seal Here

NOTARIAL SEAL STATE OF OHIO

Janel Strickland
Notary Public, State of Ohio
My Commission Expires 07-24-2013

PLEASE NOTE: incomplete information will result in the rejection of this submittal.
For all questions regarding this form and fees please call: 614-645-4522
Please make all checks payable to the Columbus City Treasurer

Revised 02/01/11

City of Columbus
Zoning Plat

ZONING NUMBER

The Zoning Number Contained on This Form is Herein Certified to Obtain Zoning, Rezoning, and Variances, and is NOT to be Used for the Securing of Building & Utility Permits

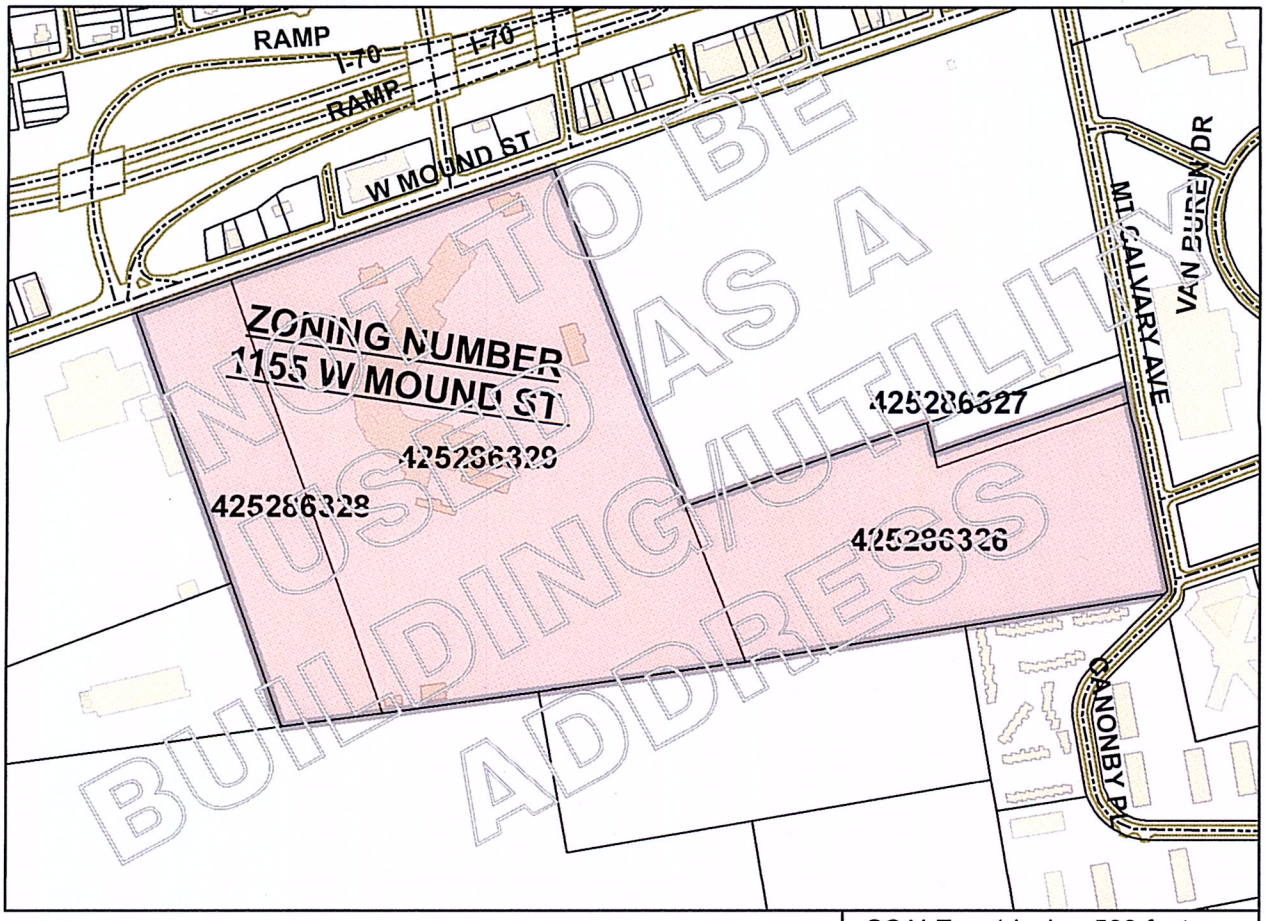
Parcel ID: 425286329

Zoning Number: 1155 **Street Name: W MOUND ST**

Lot Number: N/A **Subdivision: N/A**

Requested By: CRABBE, BROWN & JAMES, LLP (GEORGE R. McCUE)

Issued By: Cidyana Umariam **Date: 8/23/2011**



SCALE: 1 inch = 500 feet

PATRICIA A. AUSTIN, P.E., ADMINISTRATOR
DIVISION OF PLANNING AND OPERATIONS
COLUMBUS, OHIO

GIS FILE NUMBER: 374

DESCRIPTION OF A
47.161 ACRE TRACT
COLUMBUS, OHIO

Situate in the State of Ohio, County of Franklin, City of Columbus, being a part of Virginia Military Survey 422, and being all of a 47.161 acre tract (by survey), conveyed to the Franklin County Commissioners, being comprised of a 26.987 acre tract as conveyed by deed of record in Deed Book 3499, Page 445, a 12.640 acre tract as conveyed by deed of record in Deed Book 3563, Page 298, a 0.50 acre tract as conveyed by deed of record in Deed Book 3565, Page 434, a 7.031 acre tract as s conveyed by deed of record in Official Record 27144J10 and being all of Lots 13, 14, 15, 16, 17, 18, 19, and 20 of Eaton's Second Subdivision as recorded in Plat Book 1, Page 118, as conveyed by deeds of record in Deed Book 3563, Page 298 and Deed Book 3565, Page 434, all of the above aforementioned references to the Recorder's Office, Franklin County, Ohio, and being more particularly bounded and described as follows;

Commencing for reference at the intersection of the centerline of Mound Street (66 feet wide) and the centerline of Mt. Calvary Avenue (66 feet wide);

Thence South 70°50'07" West, a distance of 1396.76 feet, along the centerline of said Mound Street;

Thence South 19°09'53" East, a distance of 33.00 feet to an iron pin (set) at the northeasterly corner of the said 47.161 acre tract, said iron pin being the northwesterly corner of 25.375 acre tract (aka. Mt. Calvary Cemetery) as conveyed to Bishop, Edward J. Herrmann by deeds of record Deed Book 95, Page 589 and Deed Book 3377, Page 404, Recorder's Office, Franklin County, Ohio, said iron pin being in the southerly right-of-way line of said Mound Street, said iron pin being the northwesterly corner of Lot 8 of said Eaton's Second Subdivision, and said iron pin being also the **True Place of Beginning** of the herein described tract of land;

Thence South 20°56'19" East, a distance of 938.60 feet along a easterly line of the said 47.161 acre tract, along the westerly line of the said 25.375 acre tract, along the westerly line of said Lot 8, and also along the westerly line of Lots 17 and 18 of said Eaton's Second Subdivision to an iron pin (set) at a southeasterly corner of the said 47.161 acre tract, said iron pin being the southwesterly corner of the said 25.375 acre tract, said iron pin being the southwesterly corner of said Lot 18, and said iron pin being also the northwesterly corner of said Lot 19;

Thence North 71°09'57" East, a distance of 662.69 feet, along a southerly line of the said 47.161 acre tract, along the southerly line of the said 25.375 acre tract, along the southerly line of said Lot 18, along the northerly line of said Lot 19, and also crossing an Alley (33 feet wide) to a ¾" hollow iron pin (found) at a southeasterly corner of the said 47.161 acre tract, said iron pin being in the westerly line of a 1.00 acre tract as conveyed to Temple Israel by deed of record Deed Book 1028, Page 591, Recorder's Office, Franklin County, Ohio, said iron pin being in the westerly line of Lot 12 of said Eaton's Second Subdivision, and said iron pin being also in the easterly right-of-way line of said Alley;

Thence South 11°07'33" East, a distance of 81.89 feet, along a easterly line of the said 47.161 acre tract, along the westerly line of the said 1.00 acre tract, along the westerly line of said Lot 12, and also along the easterly right-of-way line of said Alley to a iron pin (set) at a southeasterly corner of the said 47.161 acre tract, said iron pin being the southwesterly corner of the said 1.00 acre tract, said iron pin being the southwesterly corner of said Lot 12, and said iron pin being also the northwesterly corner of said Lot 13;

Thence North 71°01'34" East, a distance of 531.03 feet, along a southerly line of the said 47.161 acre tract, along the southerly line of the said 1.00 acre tract, along the southerly line of said Lot 12, and also along the northerly line of said Lot 13 to a ¾" hollow iron pin (found) at a southeasterly corner of the said 47.161 acre tract, said iron pin being the southeasterly corner of the said 1.00 acre tract, said iron pin being the southeasterly corner of said Lot 12, said iron pin being the northeasterly corner of said Lot 13, and said iron pin being also in the westerly right-of-way line of said Mt. Calvary Avenue;

Thence South 10°58'55" East, a distance of 558.28 feet, along the easterly line of the said 47.161 acre tract, along the easterly line of said Lots 13, 14, 15 and 16, and also along the westerly right-of-way line of said Mt. Calvary Avenue to a ¾" hollow iron pin (found) at the southeasterly corner of the said 47.161 acre tract, said iron pin being the southeasterly corner of said Lot 16, said iron pin being the northwesterly right-of-way corner of Canonby Place (50 feet wide) as shown in the plat of record Dedication of Canonby Place and Easements as recorded in Plat Book 39, Page 70, and said iron pin being also the northeasterly corner of a 3.369 acre tract as conveyed to the Columbus Metropolitan Housing Authority by deed of record Official Record 01308A03, all of the above aforementioned references to the Recorder's Office, Franklin County, Ohio;

Thence South 81°13'13" West, a distance of 1107.32 feet, (passing a ¾" hollow iron pin, found, 0.15 feet south at 526.81 feet), along the southerly line of the said 47.161 acre tract, along the northerly line of the said 3.369 acre tract, along the southerly line of said Lot 16, along the southerly right-of-way line of said Alley, along the southerly line of said Lot 20, and also along the northerly line of a 10.612 acre tract as conveyed to The Trustees of Green Lawn Cemetery Association by deed of record Deed Book 1684, Page 533, Recorder's Office, Franklin County, Ohio, to a ¾" hollow iron pin (found, bent & reset) at an angle in the southerly line of the said 47.161 acre tract, said iron pin being an angle in the northerly line of the said 10.612 acre tract, and said iron pin being also the southwesterly corner of said Lot 20;

Thence South 81°27'43" West, a distance of 1216.56 feet, continuing along the southerly line of the said 47.161 acre tract, continuing along the northerly line of the said 10.612 acre tract, along the northerly line of a 6.888 acre tract as conveyed to Greenlawn Cemetery Association by deed of record Deed Book 569, Page 489, and also along the northerly line of a 0.800 acre tract as conveyed to Greenlawn Cemetery by deed of record Deed Book 47, Page 225 to a ¾" hollow iron pin w/cap, PS 6579, (found) at the southwesterly corner of the said 47.161 acre tract, and said iron pin being also the southeasterly corner of a 6.352 acre tract as conveyed to Allwaste Tank Cleaning, Inc., a Georgia Corporation by deed of record Official Record 17677H06, all of the above aforementioned references to the Recorder's Office, Franklin County, Ohio;

Thence North 18°55'58" West, a distance of 1153.48 feet, along the westerly line of the said 47.161 acre tract, along the easterly line of the said 6.352 acre tract, and also along the easterly line of a 14.506 acre tract as conveyed to TTG Properties, LLC an Ohio Limited Liability Company by deed of record Instrument Number 199802040024868, Recorder's Office, Franklin County, Ohio to a R.R. spike (set) at the northwesterly corner of the said 47.161 acre tract, said spike being the northeasterly corner of the said 14.506 acre tract, and said spike being also in the southerly right-of-way line of said Mound Street;

Thence North 70°50'07" East, a distance of 1148.35 feet, along the northerly line of the said 47.161 acre tract and also along the southerly right-of-way line of said Mound Street to the **True Place of Beginning**, containing 47.161 acres, more or less, subject to all easements, restrictions and rights-of-way of record.

Iron Pins set are 5/8" rebar with yellow plastic caps stamped "Franklin County Engineer".

Bearings shown are based on the Ohio State Plane Coordinate System, South Zone and North American datum of 1983, (1986) adjustment, as established from Franklin County Geodetic control monument "COC 18-83", with a bearing of N70°50'07"E as shown along the Northerly line of the 47.161 acre tract.

This description was prepared in the office of the Franklin County Engineer, David L. Pearson, P.S., Ohio Registered Surveyor No. 7298, from an actual field survey of the premises made in May and June, 2008, by the Franklin County Engineer's Office, and also from deeds and plats of record, Recorder's Office, Franklin County, Ohio.

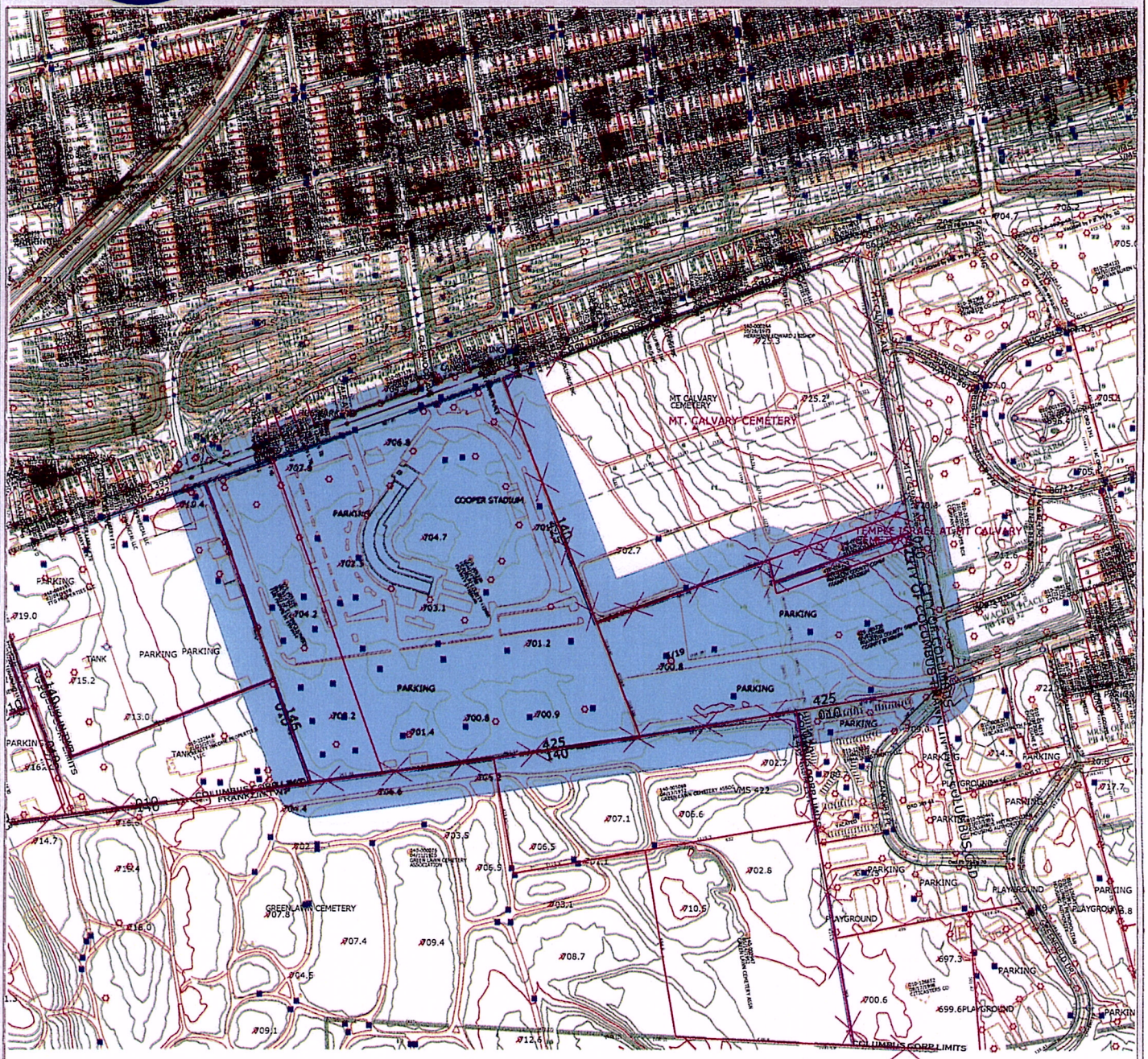
_____ _____

David L. Pearson
Ohio Registered Surveyor No.7298

Date

CLARENCE E MINGO II
FRANKLIN COUNTY AUDITOR

MAP ID: S **DATE: 8/23/11**



Scale = 562'

Grid North

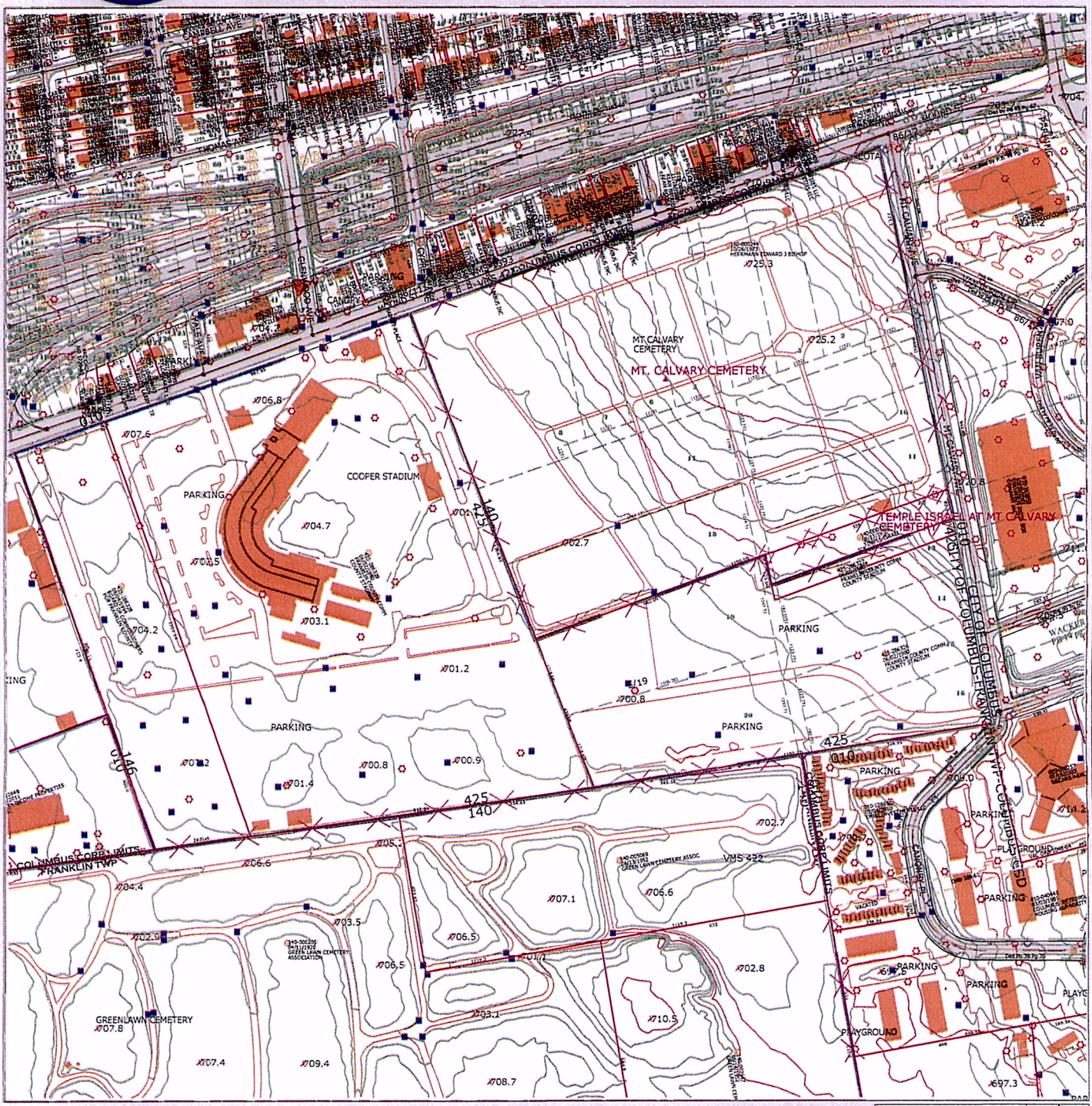
Disclaimer

This map is prepared for the real property inventory within this county. It is compiled from recorded deeds, survey plats, and other public records and data. Users of this map are notified that the public primary information sources should be consulted for verification of the information contained on this map. The county and the mapping companies assume no legal responsibilities for the information contained on this map. Please notify the Franklin County GIS Division of any discrepancies.

Real Estate / GIS Department

CLARENCE E MINGO II
FRANKLIN COUNTY AUDITOR

MAP ID: S **DATE: 8/23/11**



Scale =400

Grid North

Disclaimer

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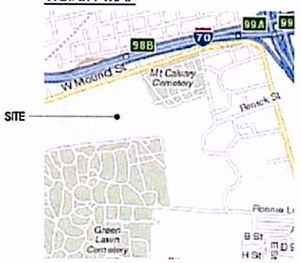
Real Estate / GIS Department

VICINITY MAP



SITE DATA:

CURRENT ZONING: R - RURAL
PROPOSED ZONING: CPD
SITE ACREAGE: 47.16 AC.
PROPOSED USE: MIXED USE COMMERCIAL
PARKING REQUIRED: 7,843
PARKING PROPOSED: 1100 SPACES MIN.

1 SD-2 SITE PLAN - PROPOSED MULTI-PURPOSE COMPLEX
Scale: 1" = 100'-0"

URBAN DESIGN LLC
Fifth Third Center
21 East State Street
Floor 20
Columbus, Ohio 43215
614/621.2137 Fax 614/227.0166

LION CONSTRUCTION SERVICES LLC
Fifth Third Center
21 East State Street
Floor 20
Columbus, Ohio 43215
614/621.2137 Fax 614/227.0166

Seal:

Client:
KING HOLDING CORP.
107 S. HIGH ST.
COLUMBUS, OHIO 43215

Project Title & Address:
COOPER STADIUM REDEVELOPMENT

1215 W. MOUND ST.
COLUMBUS, OHIO
43223

KEY PLAN

Description:	By:	Date:
BZ ZONING REVIEW		08.16.10
PRELIM TRANS. REVIEW		08.26.10
CPD ZONING APP.		08.30.10

Sheet Title:
CPD SITE PLAN
ZONING APP. # Z10-021

Proj. No.: 110823	Scale: AS NOTED
Date: 04.07.11	P.M.:
Drawn By: DM	Reviewer:

North

Sheet No.:
SD-2

Cooper Park Noise Study

HMMH Report No. 303410
May 18, 2010

Prepared for:

King Holding Corporation
107 South High Street
Columbus, Ohio 43215

Prepared by:

HARRIS MILLER MILLER & HANSON INC.


COOPER PARK
Sports & Entertainment Complex
WELCOME JOB FAIR A
VESA
DUNLOP
Wakasaki
Cooper Park
Center for
Automotive Research
& Technology

Cooper Park Noise Study

HMMH Report No. 303410
May 18, 2010

Prepared for:

King Holding Corporation
107 South High Street
Columbus, Ohio 43215

Prepared by:

Christopher Menge
Timothy Johnson
Michael Carr

HARRIS MILLER MILLER & HANSON INC.

Harris Miller Miller & Hanson Inc.
77 South Bedford Street
Burlington, MA 01803
T 781.229.0707
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Executive Summary

A comprehensive noise assessment and abatement analysis was conducted for the proposed redevelopment of the Cooper Stadium property as a motorsports complex in Columbus, Ohio. The study was conducted by Harris Miller Miller & Hanson Inc. (HMMH) for King Holding Corporation.

The study involved the measurement of existing noise levels in noise-sensitive areas surrounding the site, modeling of predicted racing noise levels during an expected loud hour of racing, evaluation of the noise requirements in the City of Columbus noise ordinance, and development of noise abatement measures for Cooper Park to ensure substantial compliance with the ordinance. The noise modeling assumed the classes of race cars specified by the developer that would use the facility, such as ARCA, late model stock cars, Legends, Midgets, and Drift Cars. The noise emissions from this class of vehicles are significantly lower than those in professional NASCAR and IndyCar races.

Substantial noise abatement structures are proposed to contain the noise from race events, including a 35-ft high sound-absorbing noise barrier surrounding the track, and a second barrier along the south property line that ranges in height from 25 ft to 30 ft.

Conclusion: Assuming the classes of racing specified by the developer and the construction of noise barriers as planned, HMMH has concluded that noise levels generated by race events in the proposed facility may be effectively managed so as to comply with the City of Columbus noise ordinance. Conclusions to the contrary reached by ROAR Columbus are based on inappropriate noise emission levels and fail to take into consideration the extensive noise abatement measures that have been proposed. In the opinion of HMMH, the ROAR Columbus noise study grossly overstates the facility's potential noise impact on surrounding areas.

Contents

Figures

Tables

1 Introduction

Harris Miller Miller & Hanson Inc. (HMMH) was retained by King Holding Corporation to perform a noise study for the proposed race track at the redeveloped Cooper Park. This report summarizes the methods and findings of the noise study. The report includes discussions of the measurements of existing noise conditions in the study area, projections of expected noise from the proposed race track, comparisons with the limits set forth in the City of Columbus noise ordinance, and the design of noise abatement structures to eliminate potential noise impact. The report includes an appendix with an introduction to the noise metrics used in the study (Appendix A), and an appendix with HMMH's experience and qualifications (Appendix B).

2 City of Columbus Noise Ordinance

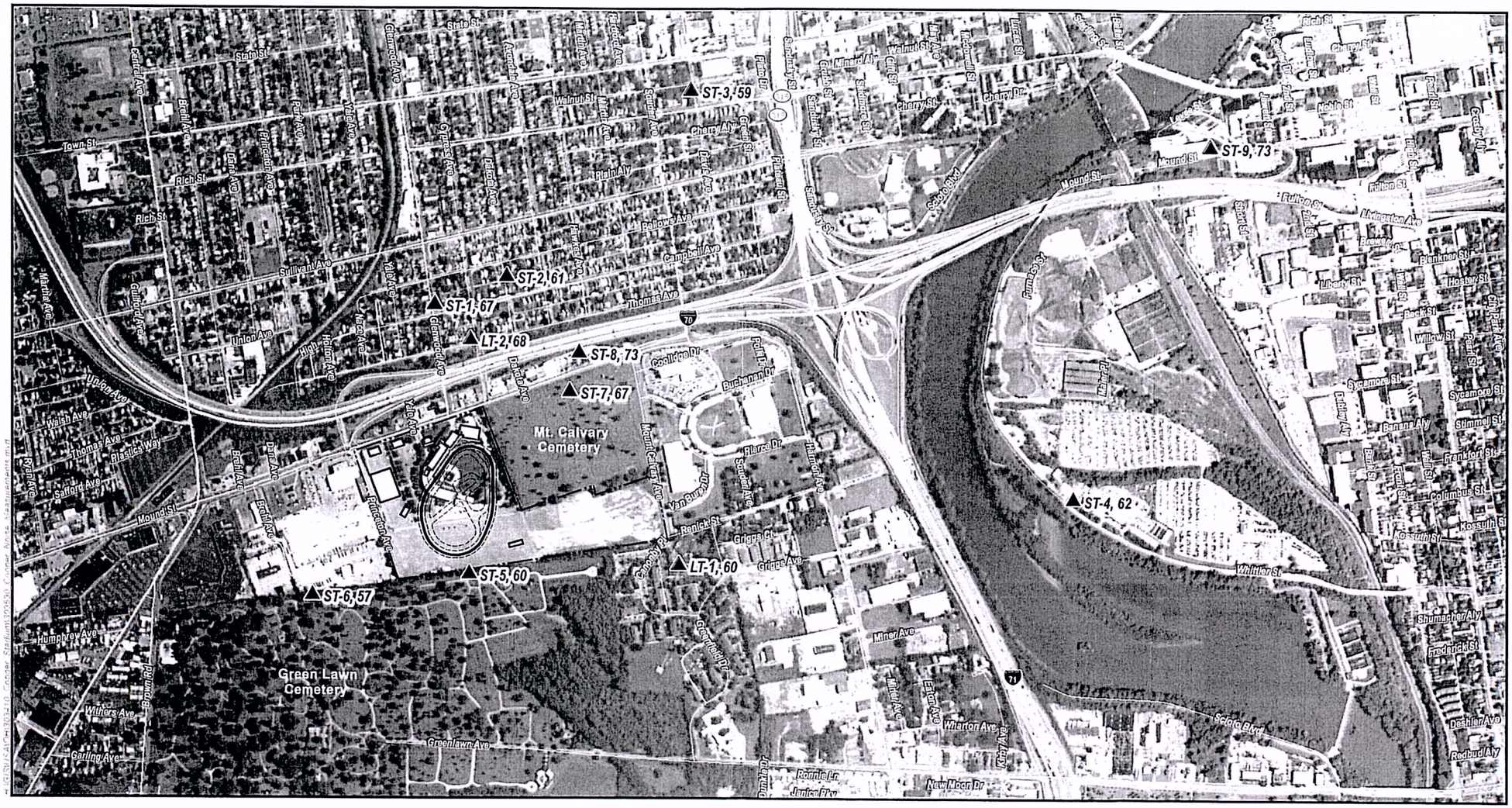
The Columbus City Council passed Ordinance No. 0544-03 in which it supplements the Columbus City Code, 1959, with new Section "2329.11 Community noise." The noise ordinance sets forth maximum hourly average sound levels emitted from "any stationary sound source, auditory device, or sound amplification system that should not be exceeded at the property boundaries of various receiving land use categories. Racing at Cooper Park could reasonably fall under the definition of "stationary sound source" or "auditory device." For residential and institutional receiving land uses, the maximum average sound levels shown in Table 1 in the ordinance are 65 dBA during the daytime hours between 7:00 AM and 10:00 PM, and 60 dBA during the night, between 10:00 PM and 7:00 AM. The average sound level is defined as the "equivalent continuous sound level," which is designated L_{eq} (or Leq). The equivalent continuous sound level has the same amount of sound energy as the fluctuating sound level over a given period of time.

Addressing the City of Columbus ordinance, the noise analysis for racing at Cooper Park evaluated the Leq for a loud hour of racing at the proposed facility.

3 Existing Ambient Noise Environment

HMMH conducted a noise measurement program in the study area surrounding the existing Cooper Stadium from November 3rd to 5th, 2009. A total of 11 noise measurement sites were chosen, two for long-term measurements of 24 hours, and nine sites for short-term measurements of 15 to 30 minutes in duration each. Noise measurements were conducted with Larson-Davis 820 sound level meters/noise monitors owned by HMMH. Field calibrations with acoustic calibrators were conducted for all of the measurements. All instrumentation components, including microphones, preamplifiers and field calibrators had current laboratory certified calibrations traceable to the National Institute of Standards and Technology.

Noise measurement sites focused on the closest residential and cemetery areas expected to have the most significant noise impacts from racing activities. Figure 1 shows the locations of each of the noise measurement sites and the measured noise levels on an aerial photograph of the study area, with the proposed Cooper Park facility shown for context. Short-term sites are shown in blue with an "ST" designation; the two long-term sites are shown in red with an "LT" label. Measurement locations ranged from the closest properties to the facility (LT-1, LT-2, ST-1, ST-2, ST-5, ST-6, ST-7, and ST-8) to areas located more than a half mile away (ST-3, ST-4 and ST-9). All sites were adjacent to residential or institutional land uses except ST-8, which was in a commercial area near I-70 and chosen to characterize noise adjacent to that highway.



Cooper Park Race Track Study
Columbus, Ohio

Figure 1: Study area and noise measurement locations

HARRIS MILLER MILLER & HANSON INC.

Table 1 provides a summary of the noise measurements at the short-term sites. Measured Leq sound levels ranged from 57 dBA at the Green Lawn Cemetery property line in the west, to 73 dBA at the Miranova Apartments near I-70. In the residential area north of the stadium, measured Leqs at the short-term sites ranged from 59 to 67 dBA. Along the Green Lawn Cemetery property line with Cooper Park, measured noise levels ranged from 57 to 60 dBA. Appendix A of this report presents a description of the noise metrics used throughout the report.

Table 1 Short-term noise measurement results

Site No.	Location Description	Start of Measurement		Measurement Duration	Measured Leq (dBA)
		Date	Time		
ST-1	404 S. Glenwood Ave.	4-Nov-2009	3:23 PM	29 min.	67
ST-2	Dakota Ave. & Campbell Ave.	4-Nov-2009	4:04 PM	18 min.	61
ST-3	S. Davis Ave. & W. Walnut St.	4-Nov-2009	4:33 PM	21 min.	59
ST-4	Audubon Society Facility	4-Nov-2009	5:10 PM	22 min.	62
ST-5	Greenlawn Cemetery East	5-Nov-2009	11:35 AM	20 min.	60
ST-6	Greenlawn Cemetery West	5-Nov-2009	12:15 PM	20 min.	57
ST-7	Mt. Calvary Cemetery	5-Nov-2009	11:45 AM	24 min.	67
ST-8	Hawkes St. (commercial)	5-Nov-2009	12:23 PM	15 min.	73
ST-9	Miranova Apartments	5-Nov-2009	1:27 PM	20 min.	73

Sound level data acquired at the two long-term sites are provided in graphical form. Figure 2 is a graph of the measured hourly noise levels at site LT-1, located at the ABACO Nursing Home at 740 Calvary Ave. Figure 3 is a graph of the measured levels at site LT-2, located in the residential community north of the stadium, at 1082 Thomas Avenue. Several common descriptors of the time-varying A-weighted noise level are shown in the graph, including the Leq and the statistical descriptors L1, L33 and L50. The L1 is representative of the loudest sounds that occurred in the hour, and the L33 is often close to the Leq in value unless there are occasional loud events, which will increase the Leq. The L50 represents the median sound level during the hour.

The ABACO Nursing Home administrative staff at site LT-1 wished the noise monitor to be located outside the windows of the building near the parking area. Daytime Leq sound levels at this facility varied from the mid-50s dBA during the quieter hours to the mid-60s dBA during a few of the louder periods. A common loud hour of the day measured approximately 60 dBA, Leq, although two hours were as high as 66 dBA. Nighttime Leqs were in the low 50s dBA, and likely dominated by background highway noise from I-70 and I-71. The noise levels at site LT-2 on Thomas Avenue were dominated by I-70 traffic noise. Daytime Leqs were quite steady from hour to hour, averaging from 64 to 68 dBA during the daytime, and dropping to about 61 dBA during the quietest nighttime hours.

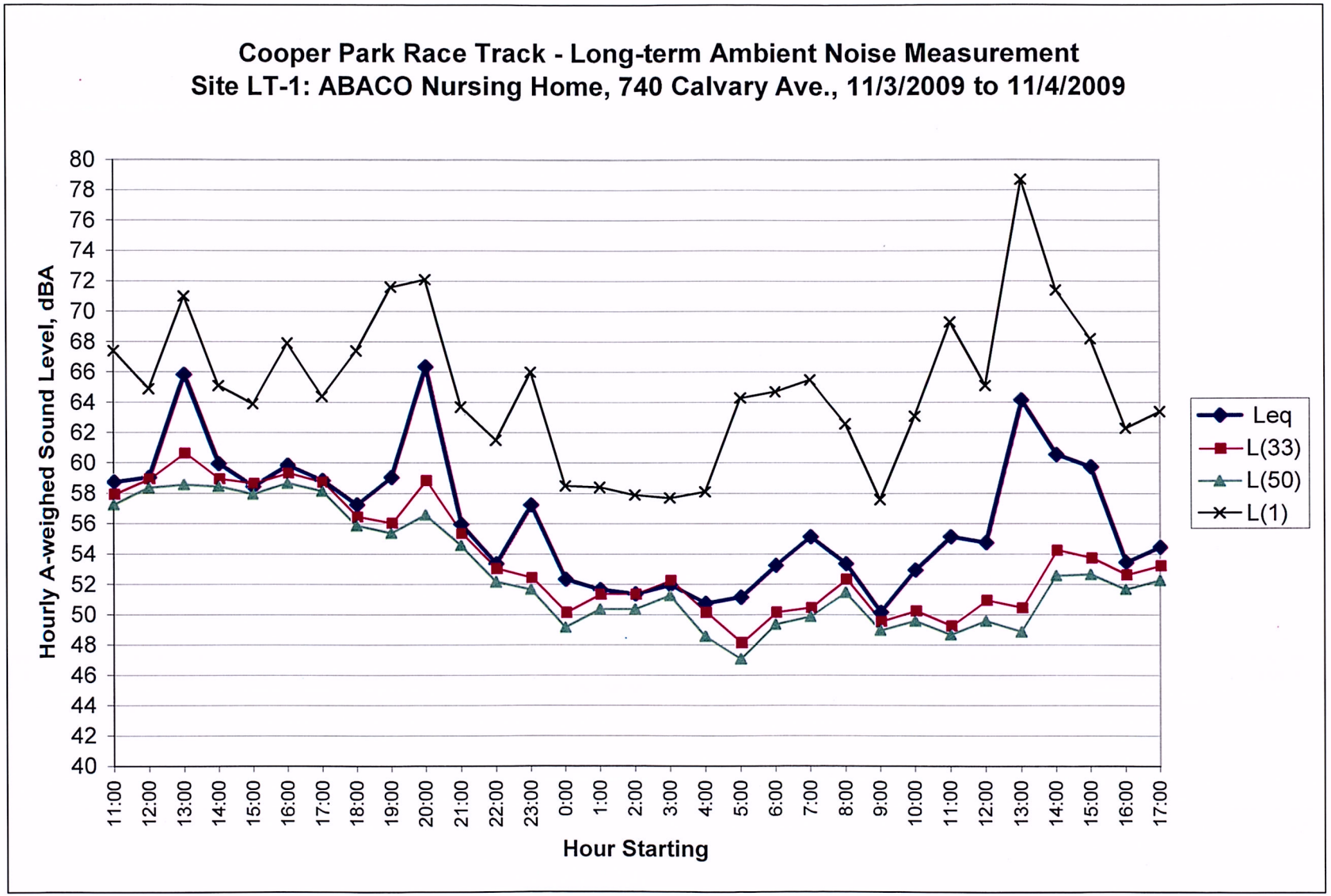


Figure 2 Long-term noise measurement results at LT-1, ABACO Nursing Home

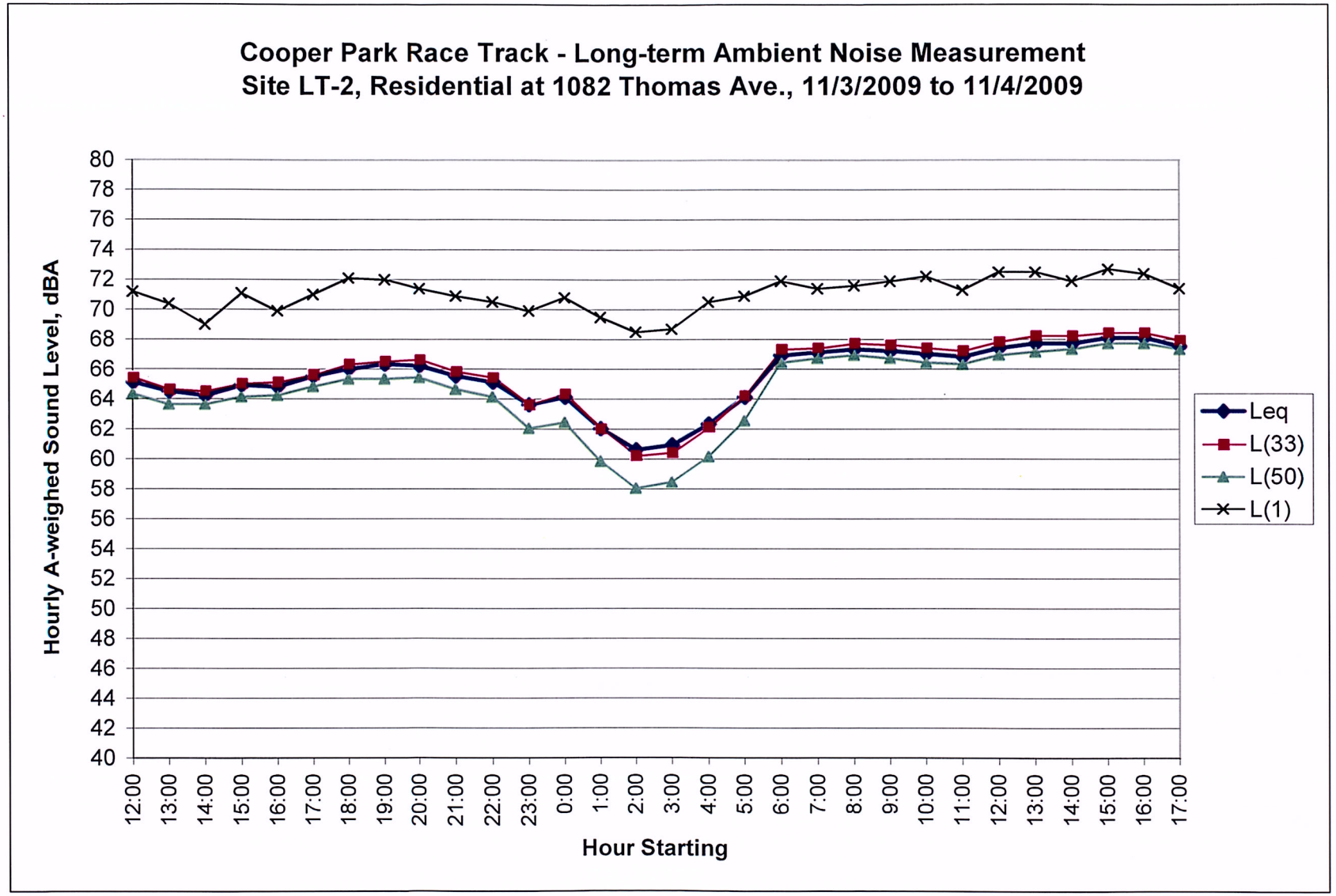


Figure 3 Long-term noise measurement results at LT-2, 1082 Thomas Ave.

4 Noise Modeling Approach and Assumptions

The SoundPLAN® computer program noise model was used for computing sound levels from racing at Cooper Park throughout the surrounding community. An industry standard, SoundPLAN was developed by Braunstein + Berndt GmbH to provide estimates of sound levels at distances from specific noise sources taking into account the effects of terrain features including relative elevations of noise sources, receivers, and intervening objects (buildings, hills, trees), and ground effects due to areas of hard ground (pavement, water) and soft ground (grass, field, forest). In addition to computing sound levels at specific receiver positions, SoundPLAN can compute color noise contour maps showing areas of equal and similar sound level. SoundPLAN also accounted for shielding and reflections from intervening buildings, walls, earth berms and other structures.

As input, SoundPLAN incorporated a *geometric model* of the study area, reference *noise source* levels for racing vehicles, and racing *activity levels* for a loud racing hour. SoundPLAN uses a *sound propagation model* to project noise levels from racing into the surrounding community.

SoundPLAN uses a three-dimensional *geometric model* of the study area to perform its calculations. The mapping for the study area was developed from aerial photography, CAD data for the City and CAD data for the proposed track design. The aerial photography was taken from the USDA's National Agricultural Imagery Program data set. The city CAD data were in HMMH's files and were used to export layers as shape files including elevation contours, building structures and roadways. CAD data for the proposed race track design were provided by King Holding Corporation. The CAD data were imported into the SoundPLAN noise model to form the geometric basis for the modeling.

The vehicle *noise source* emissions and racing *activity levels* were taken from information provided by King Holding Corporation's other acoustical consultants, Gordon Bricken & Associates, based on their extensive collection of data of this kind. It should be noted, however, that the values and assumptions provided by Gordon Bricken & Associates are entirely consistent with HMMH's experience for similar racing venues. The fundamental noise emission assumption is that the racing operations produce an Leq of 95 dBA at a distance of 50 ft from the racing line, over a period of one hour. This is intended to represent a full hour of non-stop racing with a full field of race cars that, as a class, are not the loudest race cars in the racing circuit, but are nevertheless common. Vehicles that will produce Leq of 95 dBA or less at 50 ft include ARCA, late model stock cars, Legends, Midgets, Drift Cars and various collections of stock cars usually associated with some local sanctioning bodies.

Other assumptions about the racing activity that affect the average noise emissions from the facility include the following:

- All starting vehicles are assumed to be racing during the entire hour,
- Forty-three cars were assumed racing on the track continuously,
- The average speed was assumed to be 100 mph, and
- The racing was assumed to occur during the entire hour, and there were no cautions, black flags, or other interruptions.

A primary reason that the Leq for a loud hour of racing was used as the basis for the noise emissions computations is that the Columbus City Noise Ordinance specifies noise limits in terms of one-hour Leq. As discussed above in Section 2, the City daytime limit at the property line of institutional and residential land uses is 65 dBA, Leq(1h).

SoundPLAN allows users to select a number of different *sound propagation models,* which are mathematical methods for computing how sound levels change with distance and interact with the topography. For this study, HMMH used the General Prediction Method (GPM), the most appropriate

model for the Cooper Park application for its accuracy in long-distance sound propagation and barrier calculations. This model is the SoundPLAN default, is widely used in the U.S., and is the model mandated for use in all of the Scandinavian countries and Austria. Predictions using the GPM had been compared to the predictions of other propagation models within SoundPLAN in some early tests of the performance of two barriers in series (a so-called "double-barrier" configuration) for the Cooper Park situation. Those tests showed that the GPM provided logical, reasonable and conservative results.

SoundPLAN can generate a set of noise contours of equal loudness, usually in 5 or 10 dB intervals, and it can also compute noise levels at discrete receiver locations.

5 Predicted Noise Conditions

5.1 Noise modeling goal

A primary goal of the noise modeling process was to develop feasible noise abatement measures on the Cooper Park property that would allow racing to occur without exceeding the City's noise ordinance to any significant degree. As a result, several noise barrier configurations were evaluated during the modeling process. A particular challenge to achieving the City's noise limits is the south property line with the Green Lawn Cemetery, which is relatively close to the proposed track. However, with a tall double-barrier system, the City's noise limits can be achieved.

5.2 Noise modeling results

The noise contours shown in Figure 4 represent the expected noise levels from a loud hour of racing as described above with the noise abatement structures in place. The dashed yellow line at the border between the sage green and darker blue color zones represents the computed 65 dBA Leq contour, which is the City's daytime noise limit for residential and institutional property. Two noise barriers are included in the modeling. One is a 35-ft high wall surrounding the track itself, shown as a heavy black line. There is a gap in this wall along the eastern part of the track, but the gap is overlapped by extensions of the barrier that will be sound-absorbing, so that no significant amounts of noise will leak through. The second noise barrier is located along a portion of the southern property boundary, except for a 200-ft long section that runs north-south along the western property line. The height of this second wall is 25 ft for most of its length, except that an approximately 180-ft long section in the middle closest to the track is increased in steps to 30 ft, to obtain additional noise reduction for the portion of the cemetery closest to the proposed track. The heights of the different sections of the barrier are shown in the figure adjacent to the barrier.

Note that the location of the 65 dBA noise contour line shows that projected noise levels do not exceed 65 dBA Leq at any residential properties or any significant portion of the Green Lawn Cemetery. Further, as shown by the darker blue color zone, only a modest number of homes would receive average noise levels exceeding 60 dBA during a loud hour of racing.

Table 2 lists the noise measurement sites, along with the measured noise levels at each site and the predicted noise levels from a loud hour of racing for comparison. Note that at all residential locations and all but two of the institutional sites the measured existing noise levels are higher than the predicted loud hour of racing. Only at sites ST-5 and ST-6, along the south property line with the Green Lawn Cemetery are loud racing hour noise levels projected to be higher than the measured existing levels.

Table 2 Measured and computed loud-hour racing noise levels at measurement sites

Site No.	Location Description	Measured Leq (dBA)	Computed Racing Loud-hour Leq (dBA)
LT-1	ABACO Nursing Home	60*	58
LT-2	1082 Thomas Ave.	68*	60
ST-1	404 S. Glenwood Ave.	67	62
ST-2	Dakota Ave. & Campbell Ave.	61	58
ST-3	S. Davis Ave. & W. Walnut St.	59	Less than 55
ST-4	Audubon Society Facility	62	Less than 55
ST-5	Greenlawn Cemetery East	60	65
ST-6	Greenlawn Cemetery West	57	62
ST-7	Mt. Calvary Cemetery	67	67
ST-8	Hawkes St. (commercial)	73	64
ST-9	Miranova Apartments	73	Less than 55

* Typical loud hour of the day

Projected loud-hour racing noise levels in the Mt. Calvary Cemetery are generally about the same as the I-70 traffic noise levels, based on HMMH's measurements. Exceptions are that nearer the highway, highway noise is louder than racing noise would be, and nearer the racetrack and away from the highway, racing noise would be louder than the existing noise. At no point on the Mt. Calvary Cemetery are racing noise levels expected to exceed a one-hour Leq of 75 dBA.

5.3 Noise modeling conclusions

Assuming the classes of racing generally specified above and the construction of noise barriers as planned, appropriate sound propagation methods compute that noise levels generated by race events in the proposed facility will not exceed an hourly Leq of 65 dBA at any point beyond 1250 feet from the facility property. Specifically, noise levels exceeding a one-hour Leq of 65 dBA will impact no residential properties and only a de minimis portion of Green Lawn Cemetery. Further, such noise levels in Mt. Calvary Cemetery are generally about the same as the noise from I-70 traffic throughout much of the cemetery, except that highway noise is louder nearer the highway and racing noise would be louder nearer the race track.

6 Comments on ROAR Columbus Noise Study Report

HMMH has reviewed the Aug. 10, 2009 report on noise impacts commissioned by ROAR Columbus and prepared by The Noise Consultancy. We offer the following comments on that report.

1. Some of ambient noise measurement sites appear to have been chosen with a relatively high degree of shielding from noise sources provided by nearby buildings, such as the site at Canonby Court near the ABACO Nursing Home. Measured noise levels in such locations will be lower than in less-shielded locations. Of course, any noise from racing at Cooper Park would be similarly reduced by such local building shielding.

2. A significant portion of the TNC report discusses potential noise impacts from drag racing. However, drag racing is not planned for Cooper Park.

3. The TNC analysis does not incorporate any noise abatement measures into the analysis, and predicts extensive noise impact as a result. King Holding Corporation is proposing significant noise abatement measures around the proposed race track, so the TNC projections of noise impact are not meaningful.

4. The TNC analysis references professional NASCAR races in their noise study of oval tracks. They cite average NASCAR vehicle noise emissions of 117.5 dBA at a distance of 54 ft (p. 50), which would be approximately 118 dBA at 50 ft. These emissions are based on measurements TNC obtained at Lowe's Motor Speedway in Charlotte, NC. However, the types of cars that will be using the Cooper Park facility are quieter vehicles that will produce a one-hour Leq of 95 dBA at 50 ft from the track. Such vehicles include ARCA, late model Stock Cars, Legends, Midgets, Drift Cars and various other stock cars. For a typical hour-long race, 95 dBA Leq at 50 ft would be produced by individual vehicle noise emission levels ranging from 80 dBA to 105 dBA, averaging between 90 and 95 dBA, Lmax at 50 ft. HMMH's report on the Shenandoah Speedway oval track noise study in 2006 indicate the following noise emissions for race cars at that venue:

Table 3 Assumed noise emission levels of racing vehicles by type at Shenandoah Speedway

Vehicle Type	Emission Level at 50 ft. (dBA, Lmax)
Mini Car	80
U Car	85
Legend	89
Super Stock	96
Touring	99

Source: "Shenandoah Speedway Noise Abatement Study," HMMH Report No. 301330, March 30, 2006

HMMH and King Holding Corporation recognize that professional NASCAR and IndyCar vehicles have higher noise emissions than the vehicles assumed in this study. Such professional classes of vehicles will not be eligible to race at this venue, unless a special permit is granted by the City of Columbus on an event-specific basis.

5. In several places, the report claims that long-term metrics like 24-hour and annual average Ldn are inappropriate – focusing on the loud hour Leq and single-event metrics such as Lmax and SEL instead. While this has some validity when addressing speech and sleep interference, and certainly when addressing the City noise code, long-term metrics, such as the Ldn, correlate much better with

community reaction to overall noise exposure than do short-term metrics such as the hourly Leq. Because human reaction to noise has been shown to correlate best to long-term cumulative exposure, Federal agencies that are responsible for regulating the effects of noise on people in their residential environments, such as the U.S. Department of Housing and Urban Development, base their noise effects criteria on long-term noise exposure. Certainly it is logical that the number of times in a day, month and year that loud events and loud hours occur is important in determining overall community reaction.

6. In the Impact Assessment section, the TNC report argues that racing noise is unpredictable, because the facilities are rented and those events are not published. Therefore, community members do not have the option of planning around those noisy days. However, Cooper Park does plan to publish in advance all of the racing events that will occur at the facility. Therefore, community members will be able to anticipate racing days, and community reaction to noise should be minimized.

7. Also in the Impact Assessment section, the TNC report argues that A-weighting doesn't address the excessive low-frequency noise from high-powered race cars. While this may be true for dragsters, it is not the case for most race cars, which have relatively high-revving engines. Such engines, in fact, produce a comparable proportion of low-frequency sound compared to mid- and high-frequency sound as do typical automobiles and trucks on the highway.[1] However, after making this statement, the entire TNC noise impact evaluation and assessment is done with A-weighted sound levels.

[1] HMMH has calibrated spectral measurement data to support this statement.

Appendix A Description of Noise Metrics

This Appendix describes the noise metrics used in this report.

A.1 A-weighted Sound Level, dBA

Loudness is a subjective quantity that enables a listener to order the magnitude of different sounds on a scale from soft to loud. Although the perceived loudness of a sound is based somewhat on its frequency and duration, chiefly it depends upon the sound pressure level. Sound pressure level is a measure of the sound pressure at a point relative to a standard reference value; sound pressure level is always expressed in decibels (dB), a logarithmic quantity.

Another important characteristic of sound is its frequency, or "pitch." This is the rate of repetition of sound pressure oscillations as they reach our ears. Frequency is expressed in units known as Hertz (abbreviated "Hz" and equivalent to one cycle per second). Sounds heard in the environment usually consist of a range of frequencies. The distribution of sound energy as a function of frequency is termed the "frequency spectrum."

The human ear does not respond equally to identical noise levels at different frequencies. Although the normal frequency range of hearing for most people extends from a low of about 20 Hz to a high of 10,000 Hz to 20,000 Hz, people are most sensitive to sounds in the voice range, between about 500 Hz to 2,000 Hz. Therefore, to correlate the amplitude of a sound with its level as perceived by people, the sound energy spectrum is adjusted, or "weighted."

The weighting system most commonly used to correlate with people's response to noise is "A-weighting" (or the "A-filter") and the resultant noise level is called the "A-weighted noise level" (dBA). A-weighting significantly de-emphasizes those parts of the frequency spectrum from a noise source that occurs both at lower frequencies (those below about 500 Hz) and at very high frequencies (above 10,000 Hz) where we do not hear as well. The filter has very little effect, or is nearly "flat," in the middle range of frequencies between 500 and 10,000 Hz. A-weighted sound levels have been found to correlate better than other weighting networks with human perception of "noisiness." One of the primary reasons for this is that the A-weighting network emphasizes the frequency range where human speech occurs, and noise in this range interferes with speech communication. Figure 5 below shows common indoor and outdoor A-weighted sound levels and the environments or sources that produce them.

A.2 Equivalent Sound Level, Leq

The Equivalent Sound Level, abbreviated L_{eq}, is a measure of the total exposure resulting from the accumulation of A-weighted sound levels over a particular period of interest -- for example, an hour, an 8-hour school day, nighttime, or a full 24-hour day. However, because the length of the period can be different depending on the time frame of interest, the applicable period should always be identified or clearly understood when discussing the metric. Such durations are often identified through a subscript, for example L_{eq1h}, or $L_{eq(24)}$.

L_{eq} may be thought of as a constant sound level over the period of interest that contains as much sound energy as (is "equivalent" to) the actual time-varying sound level with its normal peaks and valleys. It is important to recognize, however, that the two signals (the constant one and the time-varying one) would sound very different from each other. Also, the "average" sound level suggested by L_{eq} is not an arithmetic value, but a logarithmic, or "energy-averaged" sound level. Thus, the loudest events may dominate the noise environment described by the metric, depending on the relative loudness of the events. Figure 6 below depicts an example of a time-varying sound level over a one-minute period with a

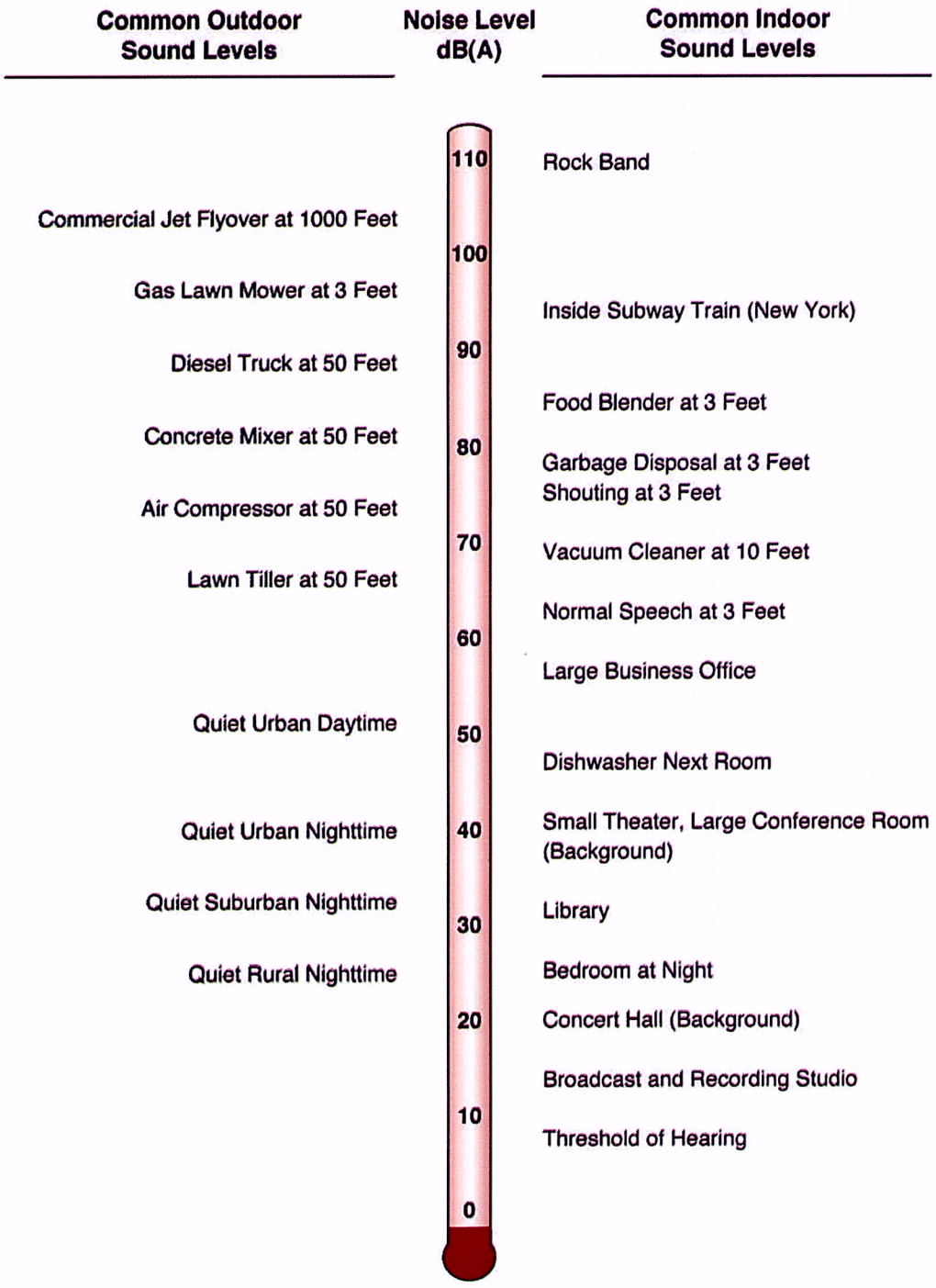


Figure 5 Common environmental sound levels in dBA

significant noise event that occurs in that period, such as an aircraft fly-over. The graphic also shows the Leq for that period. The degree to which the Leq is influenced is by the higher sound energy of the levels in the peak event can be seen, since the energy-average Leq is significantly higher than an arithmetic average of the sound levels would be.

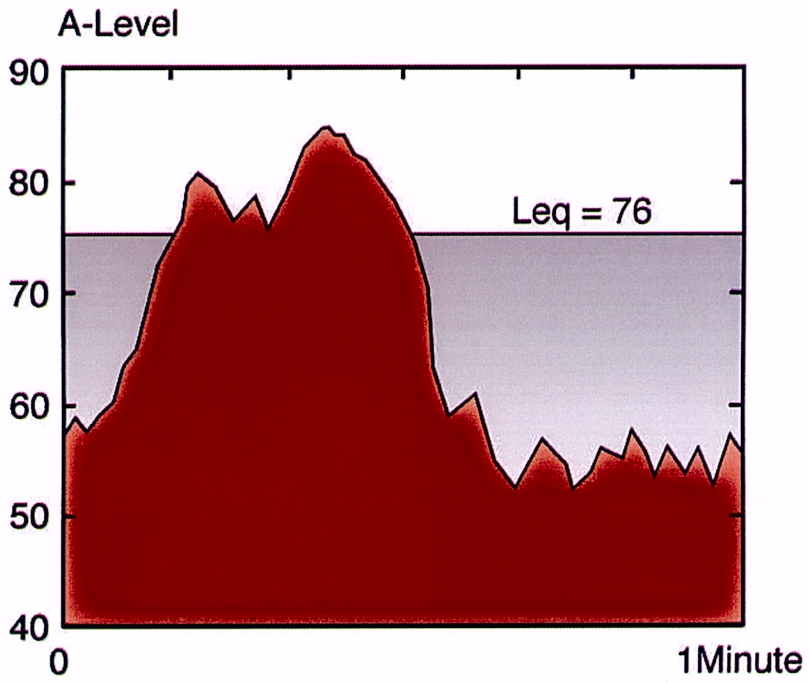


Figure 6 Example of a time-varying sound level and the Leq over a one-minute period

A.3 Statistical Sound Level Descriptors

Statistical descriptors of the time-varying sound level are often used instead of, or in addition to L_{eq} to provide more information about how the sound level varied during the time period of interest. The descriptor includes a subscript that indicates the percentage of time the sound level is exceeded during the period. The L_{50} is an example, which represents the sound level exceeded 50 percent of the time, and equals the median sound level. The L_1 represents the sound level exceeded only 1 percent of the time (36 seconds in an hour), and is a good metric for the loudest portions of a measurement period. Another commonly-used descriptor is the L_{33}, which represents the sound level exceeded one-third of the measurement period. The L_{33} is usually very close in value to the L_{eq} if no particularly loud, relatively short-term noise events occurred during the period. If loud events occur, then the L_{eq} is higher than the L_{33}. Where a relatively steadily-varying sound source such as a highway dominates the sound level, the L_{eq} and L_{33} are usually within about 1 dB of each other. The L_{90} is often used to describe the quieter background sound levels that occurred, since it represents the level exceeded 90 percent of the period.

Appendix B HMMH Experience and Qualifications

This appendix includes sections with a profile of Harris Miller Miller & Hanson Inc., relevant experience and resumes of project staff.

B.1 Company Profile

Harris Miller Miller & Hanson Inc. (HMMH) was founded in 1981 to provide the highest quality noise consulting services to airports. Today, HMMH is an international leader in environmental noise and vibration control, air quality analysis, and airport and airspace planning. HMMH maintains offices in Burlington, MA, Washington, DC, Richmond, VA, and Sacramento, CA.

HMMH provides a range of consulting services to government and private sector clients related to aviation, highway, rail, transit, bus, recreational, entertainment, industrial, construction, military, urban planning, park, and renewable energy projects. HMMH maintains a complete reference library of technical books, reports and journals, and owns a full assortment of noise and vibration measurement and analysis instrumentation.

Since most noise problems involve the public, a key component of successful solutions is the effective communication of complex technical issues. Accurate and clearly presented information reduces controversy and builds public consensus. HMMH excels at making technical issues easily understood through presentations, seminars, demonstrations, graphics, and written materials.

HMMH is dedicated to operating in an environmentally responsible manner and to raise awareness among clients and staff of environmental issues and challenges. Our recent efforts to reduce the company's environmental footprint include reducing current travel levels, offsetting emissions, using recycled office products, managing our power consumption, maintaining on-site recycling services, and providing education and volunteer opportunities for staff.

HMMH takes pride in delivering the highest quality services and providing innovative solutions. Effective teamwork, technical leadership, and integrity are HMMH hallmarks.

More information about HMMH is at our Website www.hmmh.com.

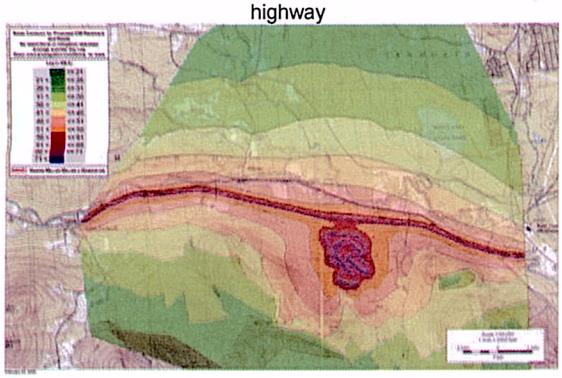
B.2 Relevant HMMH Experience

Club Motorsports Inc. Racetrack Noise Study, New Hampshire

HMMH conducted a noise analysis study for a proposed club racetrack facility in Tamworth, New Hampshire, in the foothills of the White Mountains. The Tamworth Foundation desired a balanced, neutral noise evaluation that would address both the concerns of citizens who feared that noise from the facility would adversely affect their town, as well as the interests of other Town citizens who desired the facility for the economic benefits it would bring. Since no noise or zoning regulations were applicable, HMMH's analysis focused on the expected average community reaction from the facility.

Our analysis addressed busy days as well as average days, and recommended property-line noise limits that would allow the facility to operate with all but the noisiest modified vehicles, and yet minimize the impact and audibility of racing noise at the nearest homes and throughout the Town. The Tamworth selectmen and the town adopted the property-line noise limits, and the developer is pursuing permits needed for the project.

Noise contour map generated by SoundPLAN showing both the noise contours from the racetrack and from a nearby highway



"Chris Menge, of Harris Miller Miller & Hanson conducted a sound study on the potential community impact of a controversial race track proposed for Tamworth NH, and has helped analyze documents submitted by the developer. Chris was professional, knowledgeable, thorough, flexible, and innovative in his work and recommendations, and he has contributed significantly to our community's understanding of the proposed development."

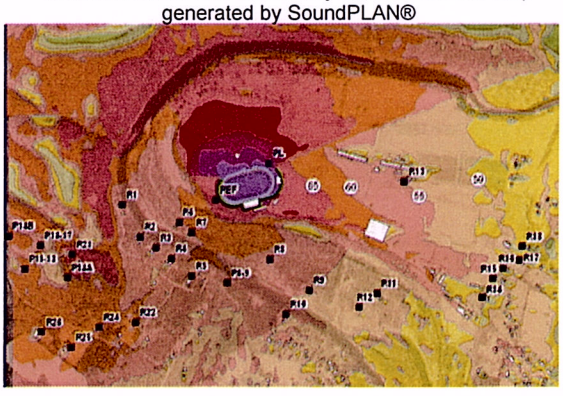
David Little, FOCUS Tamworth

Shenandoah Speedway Noise Analysis, Virginia

HMMH conducted a noise analysis study for a new racetrack facility in the foothills of the Appalachian Mountains. Page County desired a balanced, neutral noise evaluation that would address both the concerns of nearby citizens and the economic interests of the town and the track owner. Since no noise or zoning regulations were applicable, HMMH's analysis compared the noise from the racetrack to surveys of normal community reaction to comparable noise.

Modeling with SoundPLAN® allowed us to present results in a way easily understood by the public and County officials. Our analysis recommended reasonable noise abatement measures agreed to by the track owner that would significantly reduce noise in the community while allowing increased racing activity.

Racetrack noise and community reaction contour map generated by SoundPLAN®



Following implementation of the noise abatement measures, Page County contracted with HMMH to supply a portable noise monitoring system, provide training in its use to Page County staff, and evaluate and summarize the noise monitoring data collected.

"Chris and the team from HMMH did a first-rate job for Page County... His experience was lauded by county citizens and he was able to gain the respect of local residents, the race track owner and county officials combined. The results of the study were exactly what we were looking for to help strike a balance between the rights of residents to enjoy the solitude of a very rural area and the need for a local business to thrive... HMMH would be my first call when faced with a similar problem in the future."

Mark Belton, Page County Administrator

HMMH's report for Page County is available on the County's Website at: www.pagecounty.virginia.gov/files/agendas-minutes/Shenandoah%20Spdwy%20Noise%20Report%2030Mar06.pdf

Drag Racing Facility, Rhode Island

HMMH conducted a noise analysis study for a proposed drag racing facility in Richmond Rhode Island. The project, which required a zoning change for the proposed site, was highly controversial due to the quiet, residential nature of areas around the site. Because the lack of an existing race track prevented direct measurement of community noise levels, HMMH developed a noise model to assess whether the track would comply with the local noise ordinance. The noise model was based upon source-level measurements of cars typical of those that would race at the track, propagation measurements conducted at the closest residences around the facility, and monitoring of ambient sound levels. HMMH determined that with the use of mitigation measures, including mufflers and an earth berm incorporated into the seating area on one side of the track, noise from the facility would comply with the ordinance at all noise-sensitive locations. Following the analysis, HMMH provided expert testimony for the proponents of the racetrack at a series of zoning-board hearings.

California Motocross Park, California

HMMH prepared a noise study for the proposed California Motocross Park to comply with Placer County environmental requirements. The 158-acre park is planned to consist of several outdoor motocross tracks for various sizes of motorcycles, all-terrain vehicles, and BMX bicycles, as well as a partially-enclosed arena with a motocross track.

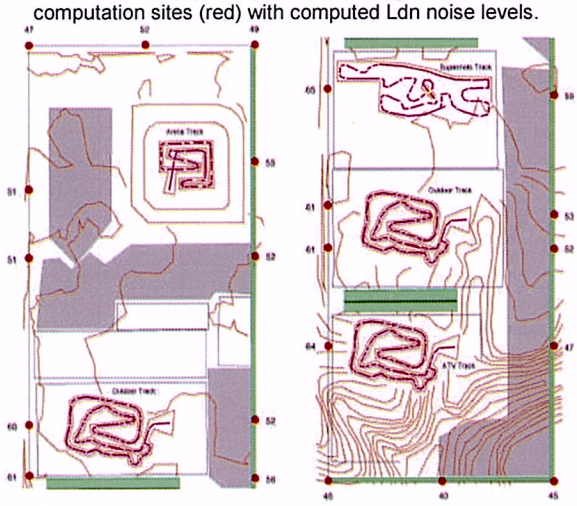
To determine compatibility of noise from the proposed Park with residential areas nearby, HMMH conducted measurements of existing noise levels in these areas and used the SoundPLAN® model to project worst-case noise conditions at the homes.

HMMH's noise study showed that the facility would comply with two different county noise requirements:

- Limits in the nearest sensitive areas on maximum sound level (Lmax) and hourly average sound levels (Leq)
- Limits at the property boundary on 24 hour average sound levels (Ldn)

Even under worst-case conditions, noise levels from the facility are expected to be well below existing ambient noise levels.

Right: Track modeling and noise computations generated by SoundPLAN® showing the tracks that were modeled (purple), elevation contours (brown), earth berms (green), and noise computation sites (red) with computed Ldn noise levels.



Port Columbus International Airport, North Airfield Run-up Noise Barrier, Ohio

With new development at Port Columbus International Airport's (CMH) North Airfield, the Airport had been receiving noise complaints related to aircraft maintenance run-ups. The majority of complaints were related to run-ups of business jet aircraft at the nationwide maintenance facility for one of the largest unscheduled airlines in the United States.

"The project had a challenging schedule once the decision was made to construct the run-up barrier and pad. HMMH and its subcontractors were able to meet the Airport Authorities' tight deadlines and within budget... Based on HMMH's excellent performance and the Columbus Regional Airport Authority's high level of satisfaction, we are pleased to recommend HMMH for future aviation noise projects."

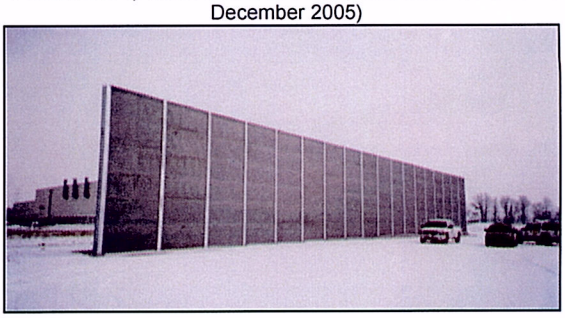
Dave Clawson, formerly Columbus Regional Airport Authority

HMMH conducted a planning and design study with the objectives of determining the optimal location for a North Airfield run-up facility and, if necessary, providing specifications for an appropriate noise abatement system. HMMH surveyed aircraft operators and tenants to determine usage patterns and better understand the feasibility of various mitigation options, conducted round-the-clock noise measurements to characterize community background levels and aircraft run-up noise in the community, and conducted detailed acoustical modeling.

Aircraft source level measurement at CMH

The study recommended a 180-foot long, 25-foot high sound-absorbing wall and HMMH subsequently oversaw design and construction administration of the noise barrier. From initial planning and site selection through design, bidding, and substantial completion of construction, the project was completed in approximately one year.

Aircraft run up noise barrier at CMH (substantial completion, December 2005)



B.3 Project Team Resumes

Christopher Menge served as Project Manager. He was assisted by Timothy Johnson and Michael Carr with technical support.

Christopher W. Menge, Senior Vice President

Since 1972, Mr. Menge's career has focused on the analysis and control of noise from a variety of industrial, transportation and entertainment sources. His most extensive experience encompasses highway noise prediction and barrier design, outdoor entertainment sources such as theme parks and amphitheaters, and ground-based noise sources at national parks, airports and industrial sites.

For the Federal Highway Administration, Mr. Menge developed the acoustical algorithms and finalized the Traffic Noise Model (TNM), FHWA's next-generation highway noise prediction software. Mr. Menge has also extended the TNM's propagation algorithms for use with other ground-based noise sources in theme parks, airports and national parks.

Education

- B.S., Physics, University of New Hampshire, 1972.
- Graduate study, Mechanical Engineering, Massachusetts Institute of Technology, 1974, and Northeastern University, 1975-1977.

Affiliations

- Board of Directors, Institute of Noise Control Engineering (INCE)
- Member, Acoustical Society of America

Representative Projects

Race Tracks

- Baltimore Grand Prix Noise Study, Baltimore, MD (2009)
- zMAX Dragway Noise Study, Concord, NC (2008-2009)
- Wilzig Motorcycle Race Track Noise Study Evaluation, Taghkanic, NY
- Shenandoah Speedway Noise Study and Abatement Analysis, Shenandoah, VA
- California Motocross Park Noise Study for Permitting, Placer County, CA
- Club Race Track Noise Study and Ordinance Recommendations, Tamworth, NH
- Racetrack Noise Intrusion and Soundscape Analysis, Appalachian Trail, Eldred, PA

Industrial

- Sheffield Wind Farm Noise Analysis, UPC Wind Management, Sheffield, VT
- High-pressure Venting Noise Abatement, Philip Morris Company, Cabarrus, NC
- Air Conditioning Noise Litigation, Hingham, MA
- Truck-mounted Refrigeration Unit Noise Abatement, Martin-Brower Co., Ayer, MA

Entertainment

- Universal Studios Islands of Adventure - Park-wide Acoustical Modeling and Noise Abatement Design and Implementation, Orlando, FL
- Black Dog Amphitheater - Sound Propagation and Background Measurement and Analysis, Bloomington, MN

National Parks

- Winter Use Plan EIS on Over-snow Vehicle Noise – Measurement, Propagation, Noise and Audibility Prediction, Yellowstone and Grand Teton National Parks, WY
- Watercraft Noise Studies, Glen Canyon National Recreation Area, AZ & UT
- Development of National Park Soundscape Management Plan, NPS, USDOI

Highway Noise Barrier Studies

- Development and Implementation of the Traffic Noise Model (TNM) Acoustical Algorithms, Federal Highway Administration.
- I-495 Capital Beltway EIS Noise Analysis and Barrier Design, Fairfax Co., VA
- I-95 / I-395 / I-495 Springfield Interchange Noise Barrier Designs, Springfield, VA

Representative Publications and Presentations

- "Is drag racing louder than a NASCAR speedway?," proceedings of Inter-Noise 2009, Congress on Noise Control Engineering, Ottawa, ON (August 2009).
- "Effective and Cooperative Noise Abatement Implementation at a New Racetrack," proceedings of Noise-Con 2008, Congress on Noise Control Engineering, Dearborn, MI, July 28-30, 2008.
- "Assessment of Community Reaction to Proposed Club Racetrack," paper no. 3PNCa3, proceedings of Noise-con 2005, Congress on Noise Control Engineering, Minneapolis, MN, October 17-21, 2005.
- Noise Data from Snowmobile Pass-bys: The Significance of Frequency Content," Society of Automotive Engineers paper no. 2002-01-2765, SAE International Publication SP-1726, 2002.
- "Residential impact criteria and abatement strategies for roller coaster noise," paper no. 598, proceedings of Inter-Noise 2002, International Congress and Exposition on Noise Control Engineering, Dearborn, MI, USA, August 19-21, 2002.
- "Status of the International-INCE Initiative on Recreational Noise and Progress on Quantifying Noise Intrusions in Parks," paper no. 61, proceedings of Noise-Con 2001, Congress on Noise Control Engineering, Portland, ME, October 2001.
- "Experiences with USDOT's Traffic Noise Model (TNM)," paper no. 493, proceedings of Inter-Noise 2001, International Congress and Exposition on Noise Control Engineering, The Hague, The Netherlands, August 27-30, 2001.
- "Measurement and Modeling of Snowmobile Noise and Audibility at Yellowstone and Grand Teton National Parks," paper no. 2aNSa8, proceedings of Noise-Con 2000, Congress on Noise Control Engineering, Newport Beach, CA, Dec. 2000.
- "Technical Assessment of the Effectiveness of Noise Walls," International Institute of Noise Control Engineering Working Party on the Effectiveness of Noise Walls, I-INCE publication 99-1, Noise/News International, 7 (5) 1999 September, pp.137-161.
- FHWA Traffic Noise Model, Technical Manual, Federal Highway Administration Report No. FHWA-PD-96-010, February 1998.
- Noise from amusement park attractions: Sound level data and abatement strategies, Noise Control Engineering Journal, 47 (5) 1999 Sep-Oct.
- "Barrier Diffraction and Sound Propagation in USDOT's new Traffic Noise Model", Proceedings of Inter-noise 96, the 1996 International Congress on Noise Control Engineering, Liverpool, U.K., July, 1996.
- "La Guardia Airport Ground-Noise Abatement Study," Transportation Research Record 1444, Transportation Research Board, National Research Council, 1994.
- "Low-Noise Windscreen Design and Performance," Proceedings of National Conference on Noise Control Engineering, Ft. Lauderdale, FL, May 1994.
- "Barrier Priority Program for the Massachusetts Turnpike," presented at the Annual Meeting of the Transportation Research Board, Washington, D.C., January 1993.
- "Fairness in Noise Barrier Policy and Design: A Case Study on the Dulles Toll Road," presented at the Annual Meeting of the Transportation Research Board, Washington, D.C., January 1991.
- "Wind Effects on an Airport Noise Barrier," presented at the Summer Meeting of the Transportation Research Board Committee on Noise and Vibration (AIFO4), Princeton, New Jersey, July 1987.
- "Noise Barrier Cost Reduction Procedure, STAMINA 2.0/OPTIMA: User's Manual," Federal Highway Administration Report NO. FHWA-DP-58-1, April 1982.

Timothy Johnson, Consultant

Tim Johnson joined HMMH in 2005. He provides acoustical & vibration measurement and analysis support in the transportation and entertainment sectors. Mr. Johnson brings experience performing a variety of noise and vibration measurement techniques, including sound level measurements and recordings, transmission loss measurements and analysis, reverberation time measurements and analysis, and ground-borne and structure-borne vibration measurements and analysis. Mr. Johnson is an experienced user of the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) as well as drafting software AutoCAD, and universal noise modeling software SoundPLAN.

Prior to joining HMMH, Mr. Johnson worked as an audiovisual consultant where he worked with architectural firms and other consulting firms to design and specify audio and video systems for professional and performance spaces throughout the country.

Mr. Johnson is an experienced user of the noise modeling software SoundPLAN and has worked on a variety of projects using it, including:

- California Motocross Park Noise Study – SoundPLAN modeling of racetrack
- Shenandoah Speedway Noise Study – SoundPLAN modeling of racetrack
- Extension of Apron at NetJets Facility – SoundPLAN modeling of aircraft operations on a hanger apron
- Fairfield, CT Fire Engine Audibility – SoundPLAN modeling of effects of noise barrier on audibility of fire engine
- Calcium Carbonate Plant Noise Control – SoundPLAN modeling of manufacturing plant
- Wind Farm Noise Effects Study – SoundPLAN modeling of wind farm
- Amsterdam Airport Schiphol Noise Barrier Study – SoundPLAN modeling of noise barriers at airport

Education

- B.S., Mechanical Engineering with Acoustics Concentration, University of Hartford, West Hartford, CT, 2002

Affiliations

- Member, Institute of Noise Control Engineering, 2006-present
- Member, Acoustical Society of America, 2006-present

Representative Projects

Entertainment Projects

- zMAX Dragway Noise Study, Concord, NC (2008-2009) Noise Measurements/Modeling
- California Motocross Park Noise Study for Permitting, Placer County, CA (2006-2007), Noise Modeling
- Shenandoah Speedway Noise Study and Abatement Analysis, Shenandoah, VA (2006-2008), Noise Modeling

Aviation Projects

- Expansion of Apron at NetJets Facility, Port Columbus International, Columbus, OH (2008), Noise Measurements and Modeling

Industrial Projects

- Calcium Carbonate Plant Noise Control, Florence, VT (2007), Noise Modeling

Highway Projects

- Mass. Highway Rt-18 Environmental Assessment, Weymouth, MA (2006), Assistant Project Manager
- NYSTA Noise Barrier Design, Bronx, NY (2006), Noise Measurements and Modeling
- NYSTA Noise Barrier Design, New Rochelle, NY (2006), Noise Measurements and Modeling
- VDOT I-95/395 HOT Lanes, VA (2007-2008), Noise Measurements and Modeling

Rail and Transit Projects

- Alaska Railroad Capacity Improvement Noise and Vibration Impact Assessment, Anchorage, AK (2007), Noise and Vibration Modeling
- Caguas-San Juan Rail Corridor Environmental Impact Statement, Puerto Rico (2006-2007), Assistant Project Manager
- UTA West Valley LRT Corridor Environmental Impact Statement, West Valley City, UT (2006), Noise and Vibration Modeling
- Alaska Railroad Ship Creek Intermodal Center Noise Impact Assessment, Anchorage, AK (2006), Noise and Vibration Modeling
- Desert Express Project Environmental Impact Statement, CA/NV (2006-2008), Assistant Project Manager
- Houston Metro University Corridor Environmental Impact Statement, Houston, TX (2006-2008), Noise and Vibration Measurements and Modeling
- Colorado Railcar DMU Noise and Ride Quality, Miami, FL (2006), Ride Quality Measurements
- MRI & CT Scanner Vibration Study for TriMet South Corridor, Portland, OR (2006), Vibration Measurements
- UTA Mid-Jordan Transit Corridor Environmental Impact Statement, Salt Lake City, UT (2006-2007), Assistant Project Manager
- CREATE Project Train Vibration Measurements, Chicago, IL (2005), Vibration Measurements
- DART Rowlett LRT Extension Environmental Impact Statement Dallas, TX (2005-2006), Noise and Vibration Measurements and Modeling
- DART Vehicle Noise and Vibration Level Comparison, Dallas, TX (2005), Noise Modeling
- DART Irving Line Environmental Impact Statement, Dallas, TX (2005-2006), Noise and Vibration Measurements and Modeling
- Denver RTD North Metro Transit Corridor, Denver, CO (2007-2008), Assistant Project Manager
- Denver RTD Gold Line Transit Corridor, Denver, CO (2007-2008), Assistant Project Manager
- Ground-Borne Noise Study for the Hong Kong Cultural Center, Hong Kong SAR, (2007-2008), Vibration Measurements
- In-tie Switch Vibration Study for Long Island Railroad, Long Island, NY, (2006), Vibration Measurements
- Federal Railroad Administration/Foster Miller Locomotive Cab Noise Control, Fitchburg, MA, (2007-2008), Noise Measurements and Modeling
- MBTA Urban Ring DEIR, Boston, MA, (2007-2008), Assistant Project Manager

Michael Carr, Senior Consultant

Michael Carr has more than 10 years experience in noise and vibration control. He has conducted technical noise studies and environmental assessments for industrial, commercial, and residential projects. He has familiarity CEQA, having authored Caltrans Noise Study Reports; EIR and IS/MNDs; and NEPA through work on EIS and EA sections for NEPA compliance.

Other areas of technical expertise include architectural acoustics, structural acoustics, construction noise and vibration, mining operations, underwater acoustics, and bio-acoustics. Mr. Carr has also authored, and become fluently familiar with proprietary modeling programs Cadna A, SoundPlan, Marshal Day Acoustic's Insul partition performance prediction software, the Environmental Noise Model , the FAA's Integrated Noise Model (INM) for predication of aviation related noise, along with FHWA Based software such as Sound 32, and the Traffic Noise Model (TNM).

Education

- A.S. Electronic Technology, Sierra College, Folsom, CA, 2006
- A.S. Computer Technology, Sierra College, Folsom, CA, 2006
- Certificate in Mechatronic Systems, Sierra College, Folsom, CA, 2005

Affiliations

- Member, Institute of Noise Control Engineering, 2007-present
- Member, Audio Engineering Society, 2007-present

Representative Projects

- Buffalo International Airport Non-Residential Sound Insulation Program, C&S Engineers, Inc. Buffalo, NY (2009-2010), *Senior Consultant*
- Tulsa International Airport Sound Insulation Program, C&S Engineers, Inc. Tulsa, OK (2009-2010), *Assistant Project Manager*
- San Diego International Airport Quieter Homes Program, C&S Engineers, Inc./Jones Payne Group, San Diego, CA (2009-2010), *Assistant Project Manager*
- Anchorage International Airport Residential Sound Insulation Program, C&S Engineers, Inc., (2009-2010)

Architectural (prior to joining HMMH)

- US Missile Defense Agency - Von Braun Complex, Interior Acoustic Privacy Assessment, Army Corps of Engineers, (2008-2009), *Project Manager*
- NASA AMES Research Facility, Sound Insulation Study, Mountain View, CA (2008-2009), *Acoustical Consultant*
- AECOM Open Office Plan Interior Acoustic Analysis, AECOM Technology Inc., Sacramento, CA (2008-2009), *Project Manager*
- Marriot Residence Inn Interior Acoustic Analysis, Marriot International, Truckee, CA (2007-2008), *Project Manager*
- Western Power Authority Open Office Plan Interior Acoustic Analysis, Folsom, CA (2007), *Acoustical Consultant*
- Heavenly Mountain Resort Amphitheater Acoustic Analysis, Vail Resorts, South Lake Tahoe, CA (2006-2007), *Acoustical Consultant, Project Manager*
- Siller Ranch Amphitheater Acoustic Analysis, DMB Highlands Group, Truckee, CA (2006-2007), *Acoustical Consultant*
- Riva Residential Sound Insulation Analysis, Riva on the River LLC, Sacramento, CA (2006-2007), *Acoustical Consultant*
- Federal Correctional Institution Mendota, Post-Construction Acoustical Survey, Mendota CA (2006), *Acoustical Consultant*
- ARCO Arena Audio Visual Modernization, Maloof Sports & Entertainment, Sacramento, CA (2002-2004), *Project Manager*
- Sacramento Valley Amphitheater Propagation Assessment, Bill Graham Presents, Yuba County, CA (2000)

Environmental (prior to joining HMMH)

- Old Roseville Historic District Master Plan, Specific Plan, and EIR, City of Roseville, Roseville, CA (2008), *Project Manager*
- Calaveras County Criminal Justice Center IS/MND in compliance with CEQA, County of Calaveras, Calaveras, CA (2008), *Project Manager*
- North Kern Valley State Prison Facility EIR, California Department of Correction and Rehabilitation, Delano, CA (2008), *Project Manager*
- Kern Valley State Prison Facility EIR, California Department of Correction and Rehabilitation, Delano, CA, (2007-2008), *Project Manager*
- Singh and Nicolaus Restoration and Public Access Project EIR, The Nature Conservancy of California and California Department of Parks and Recreation, Butte County, CA (2007), *Project Manager*
- CDCR NCWF Conversion to Re-Entry Facility EIR, California Department of Correction and Rehabilitation, Stockton, CA (2007-2008), *Noise Monitoring*
- Mariposa Lakes EIR, Quad Knopf, Stockton, CA (2006-2007)
- Heavenly Ski Resort Snow Making Equipment Monitoring, Vail Resorts, South Lake Tahoe, CA (2005-2008), *Project Manager*