STAFF REPORT

DATE: August 30, 2022

TO: City Council

FROM: Dale Sumersille, Parks and Community Services Director

SUBJECT: Arroyo Park Sky Track

Recommendations

Staff recommends that the City Council take the following actions:

1. Approve the relocation of the Sky Track facility in Arroyo Park to a new location, described in more detail below and referred to as "Location B."
2. Approve a Resolution *(attachment 7)* authorizing the City Manager or his designee to execute two contracts as follows: (1) An agreement with Recreation Services for the removal and re-installation of the Sky Track at Location B; and (2) An agreement with Gametime for the purchase and installation of an obstacle course to replace the existing Sky Track equipment.

Fiscal Impact

The estimate to move the Sky Track to a new location is approximately $49,900. The cost for the replacement and installation of the replacement equipment is $55,921.00. The funding for the relocation of the Sky Track and the new equipment will come from a combination of Park Development Impact Fees and General Fund.

Council Goals

Ensure a Safe, Healthy, Equitable Community
Fund, Maintain and Improve Infrastructure
Foster Excellence in City Services

Commission Input

This item has been discussed with the Recreation & Park Commission in March 2022, April 2022, May 2022 and most recently, at a Special Recreation & Park Commission meeting on June 21, 2022. At the June 21 meeting the Commission recommended the City Council approve relocating the Sky Track to Location B, and recommended approval of the obstacle course play equipment for installation at the former Sky track location.

Background and Analysis

In May 2019, the Parks and Community Services Department completed the replacement of old play structures at Slide Hill Park, Covell Greenbelt and Arroyo Park. The new play structures incorporated best practices for playground design. Included in the design for

Arroyo Park was the Sky Track (similar to that which was installed at Pioneer Park) that imitate the sense of flight.

Since the Sky Track was installed in Arroyo Park, the City has experienced several practical challenges with the play equipment in this specific location – namely issues with noise and vandalism. Noise issues are directly attributed to the moving/mechanical nature of the equipment and the close proximity of the equipment in its particular location to nearby homes. Vandalism issues have resulted from persistent and frequent tampering with lock mechanisms that were installed shortly after the Sky Track installation (used by City staff to lock the equipment each night and unlock the equipment each morning) to curtail unauthorized nighttime use of the equipment due to noise complaints.

An online neighborhood survey was conducted in February 2020. Over 846 postcards with a QR code link were mailed to residents that live within 1,000 feet of Arroyo Park. The City received 504 responses on Survey Monkey and 2 handwritten responses were received via email. 94.39% of the respondents stated that they enjoyed the Sky Track, and 215 specific comments were made about the Sky Track. Of the 215 comments received, 197 were positive and expressed enjoyment of the Sky Track, 13 comments raised concerns, and 5 comments stated that the respondent had no opinion or was not familiar with the amenity. Of the comments received raising concerns about the Sky Track, most were centered on the issue of noise generation. Since noise impacts only affect the households in closer proximity to the Sky Track, it is to be expected that the vast majority of respondents would not raise noise as a concern.

Noise Ordinance and Sound Level Descriptors

When it comes to interpreting the City's noise standards and applying them to real life situations in the City, City staff rely on expert noise consultants for guidance. Noise consultants use a number of abbreviations to describe noise levels, including, as relevant for interpreting the City's Municipal Code noise standards, "Leq" and "Lmax." In layperson language, Leq describes an average sound level over a period of time, whereas Lmax is the loudest noise or maximum value measured during a period of time.

The City's code does not use this terminology and is silent as to which type of measurement is intended in its noise standard tables. Table No. 1 in Section 24.02.020 of the Davis Municipal Code limits exterior noise levels to a "maximum" 55 and 50 decibels (dBA) during the daytime and nighttime, respectively in residential areas. Importantly, this section is later qualified by Section 24.02.030, which states: "No person shall produce, suffer or allow to be produced in any location a noise level of more than twenty dBA above the limit, but not greater than eighty dBA, on Table No. 1 measured at the property plane."

Read together, these provisions indicate that the City's "absolute maximum" dBA, or "Lmax," in a residential zone is to be 20 dBA above the limits listed in Table No. 1. Therefore, it is reasonable to interpret the limits described in Table No. 1 as an average noise limit or "Leq." To interpret the sound levels in Table No. 1 as an absolute or Lmax limit would render the language in Section 24.02.030 meaningless. The City's expert

noise consultants have consistently interpreted the limits in Table No. 1 to represent Leq limits. Their studies have been premised on this interpretation of the Davis Municipal Code: the Leq limit in residential zones is 55 dBA between 7 am and 9pm, and 50 dBA at night from 9pm to 7am, whereas the absolute maximum or Lmax permitted in residential areas is 55+20 dBA, or 75 dBA during the day, and 70 dBA at night. The City's noise consultants assert that this interpretation is commonplace in their industry. Further, the City's consultants (from two different firms, as described in more detail below) have consistently asserted that the noise limits in Table No. 1 cannot be Lmax because everyday occurrences such as speaking, cell phones ringing, starting of cars or car doors slamming, dogs barking, or normal sounds of children playing could exceed a dBA level of 55 dBA using the Lmax measurement.

The City's noise consultants will be available to answer questions from City Council at the Council meeting.

Noise Studies at Arroyo Park

The City of Davis Municipal Code limits exterior noise levels to 55 and 50 decibels (dBA) during the daytime and nighttime, respectively. To address the concerns about noise, City staff retained Bollard Acoustical Consultants, Inc. (BAC) in July 2019 to conduct a noise study (*attachment 3)*. The BAC analysis concluded that the noise generated by the Sky Track at Arroyo Park was under the threshold set by the City's noise ordinance standards for daytime noise (55 decibels as measured at the nearest residence). As a result, BAC's report stated that no additional noise mitigation measures related to the equipment were necessary during the day. However, additional measures were recommended to address nighttime noise, which was found to exceed the City's noise ordinance standards.

Parks & Community Services staff responded with the following actions in an attempt to address the concerns raised from the neighbors:

1. Placed signage at the park as well as social media informing the public that the Sky Track is open for use from 8:00 am to sunset daily;
2. Installed additional rubber bumpers at both ends to better absorb noise from the track at each end;
3. Assigned staff to unlock the Sky Track at 8:00 am each morning and lock the Sky Track each evening at sunset utilizing chains and locks.

While the locking of the Sky Track was helpful in reducing nighttime noise impacts to the nearby residences, it presented several challenges to staff, neighbors, and park users. The lock mechanisms have been vandalized or tampered with multiple times (cutting of locks, theft of locks and chains, rendering locks inoperable so that they cannot be re-locked at night). There have been at least 12 documented occurrences. There have also been circumstances where the Sky Track has not been locked and/or unlocked in a timely manner – attributed to turnover of staff assigned to other responsibilities at the park, and the relatively far distance of the Sky Track from the pool complex where staff are assigned to their primary duties.

With these recurring issues described above, staff set forth to explore whether other locations within Arroyo Park might provide a better fit for the Sky Track, ensure compliance with the noise ordinance limits at all times of day and night, reduce concerns to neighbors, and reduce issues of vandalism, all while ideally retaining the amenity within the park for people to enjoy. Having a solid understanding of the noise profile of the equipment in various locations was key to this assessment. The City therefore commissioned a second noise analysis report from Acoustics Group, Inc. (AGI). The full report received in early March is attached to this report (*attachment 4*). AGI assessed the noise from the Sky Track in its current location in order to obtain baseline data, and also conducted modeling of noise levels at four (4) possible alternative locations within Arroyo Park. Variables considered in addition to location were time of use and characteristics of the individuals using the Sky Tracks, as detailed in the report.

AGI conducted a site visit on December 2, 2021, to observe the project site and to conduct three short-term (NM1-3) measurements to document noise levels produced during Sky Track operations. The Sky Track consists of a swing and a separate seat that are suspended on parallel tracks and riders are pushed from end to end on the track. AGI conducted extensive testing of the equipment in an attempt to mimic different intensities of equipment usage and a variety of users of different sizes and weights.

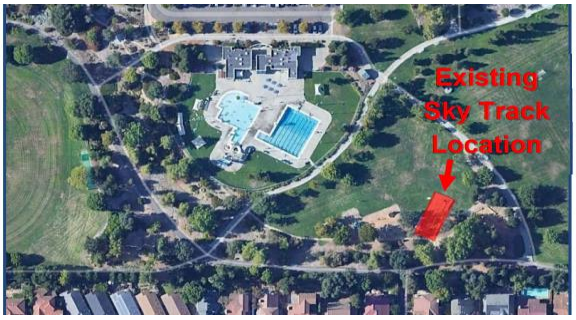


Fig. 1 – Existing Sky Track Location

Fig. 2 - Noise Measurement Locations

The AGI analysis found that noise from use of the Sky Track ranges from slightly below the Daytime Noise Standard of 55 dBA Leq to slightly above depending upon the location of noise measurement (refer to page 6 in the Noise Study) and use of the facility. During their testing of the equipment, AGI measured decibels as high as 57.2, 55.5, and 66.3 dBA at receptor locations NM1, NM2, and NM3, respectively.

The AGI study concluded that Sky Track noise levels may exceed both day and night City noise ordinance standards under certain circumstances. The differences between the BAC and AGI studies' findings are thought to be due to the more rigorous testing conducted by AGI, and the AGI study does not necessarily imply that the Sky Track is always in violation of the City's noise standard. The AGI study does highlight that based on real-world and reasonable use, as would be expected of such park equipment, the Sky Track may occasionally exceed the City's noise standards for both day and night.

Therefore, staff closed the Sky Track to operation until such time that it can be re-located to a more suitable site.

The AGI report further discusses several alternative locations for the relocation of the Sky Track. The locations evaluated are as follows:

Fig. 3 – Proposed Sky Track Locations **Fig. 4- Indicates DJUSD/City Property Lines**

Location A – This location is on the western border of the park. This location is on a portion of the park that is Davis Joint Unified School District (DJUSD) property. This site was evaluated as it had the potential to provide adequate distance to homes without interfering with the field of play for the adjacent cricket field. The noise levels produced would comply with the Daytime and Nighttime Noise Standard of 55 and 50 dBA, respectively. However, the location is 126 feet west of Patwin Elementary School and the nearest exterior classroom setback would experience noise as high as 57 dBA – exceeding the city's residential daytime noise limit standard of 55 dBA. This location would also require an agreement with DJUSD, and possible hours limitations on use during school hours, which could create similar challenges as the current location. Due to the potential impacts on classroom instruction and the likelihood of having to continue to lock the equipment at certain times of day, and not being proximate to City staffed facilities, staff concludes that this is not a viable location.

Location B – This location is near the center of the park, just east of the aquatics center. The Sky Track noise levels would be within the Daytime and Nighttime Noise Standard to all residential properties to the north, south, east and west.

Location C – This location is in the middle of the park and just east of the walkway bisecting the park. The Sky Track noise levels would comply with the Daytime and Nighttime Noise Standard to all residential properties to the north, south, east and west.

Location D – This location is near the northern boundary of the park, just east of the aquatics center. The operational noise at this location would comply with the Daytime Noise Standard, but nighttime operations would exceed the noise ordinance and could exceed the Nighttime Standard as measured to the residential properties to the north. Therefore, as with Location A, staff does not recommend further consideration of this location due to potential nighttime noise impacts.

Based on the analysis in the attached AGI study and from the March 2022 survey conducted, and on the Recreation and Park Commission deliberations and recommendation, staff recommends that the Sky Track should be relocated to location B. Moving the Sky Track to location B will:

1. Bring the play equipment into compliance with the City's Daytime and Nighttime Noise Ordinance decibel limits without the need to lock the equipment at certain times of day to avoid noise ordinance violations.
2. Provide easy access to all current users within Arroyo Park.
3. Be conveniently located near the aquatics center and nearer to parking and vehicle access than the current location, resulting in easier monitoring of the equipment by neighbors, police patrols, and staff, hopefully reducing potential vandalism.
4. Provide staff with proximate access to the unit more readily.
5. To be a good neighbor and locate the Sky Track to a quieter location.

AGI also recommended that if the Sky Track is relocated to either B or C, the unit should be placed in a west to east orientation instead of the current north to south orientation which will further reduce the noise heard from the nearby properties.

Staff may still determine that the Sky Track should be locked at night in the new location to reduce after hours use if such use becomes a nuisance. Staff recommends assessing the need to lock the equipment once relocation is completed. If locking in the new location is determined appropriate, staff working at the park would be in much closer proximity to the equipment and monitoring could be readily achieved.

Additional Survey and Commission Recommendations

In March 2022, City staff conducted a survey (*attachment 1*) with residents living within 1000 feet of Arroyo Park about the recent and future amenity improvements at Arroyo Park. At the April 20, 2022 Recreation & Park Commission (RPC) meeting, staff reviewed the preliminary results of the survey with the RPC *(attachment 2)*.

Question 5 – Sky Track location
166 or 42% stated that they prefer Location B

340 of the 395 (86%) responses stated that they want to keep the Sky Track in Arroyo Park

17 or 13% of the "None of the above" responses stated that they do not want the Sky Track in Arroyo Park.

The Recreation & Park Commission held a Special meeting on June 21, 2022, after the commission members considered all of the public testimony and responses by both noise consultants to questions, a motion was made by T. Herdt, seconded by T. Marigo to move the Sky Track to location "B". The roll call vote is as follows:

Ayes: Chambers, Herdt, Marigo, Ono, Siegel

Noes: Vink
Absent: LeFlore
Abstentions: None

New Play Equipment Replacing the Sky Track

Concurrently with relocating the Sky Track the City will pursue installation of new replacement play equipment at the current Sky Track location. Engaging with the neighbors on the new equipment was essential, and staff undertook a broader and more inclusive outreach effort than what was done prior to installing the original Sky Track in order to hopefully avoid the issues and challenges that the Sky Track has generated, as described in this report. Since the installation of the Sky Track, the City's park neighborhood outreach and engagement mechanisms have been substantially enhanced, and staff used those updated methods to determine what new play equipment will take the place of the current Sky track location. Staff engaged with the neighborhood and presented a range of possible play equipment options, to include equipment that will cater to a range of objectives and introduce a fun, new amenity while minimizing impacts to nearby residences.

Question 6 of the survey (*attachment 2*) asked about what type of equipment residents would like to see placed in the current Sky Track location? The results were:

150 or 39% residents stated that they prefer Obstacle Course B:

Fig. 5 Proposed Obstacle Course B

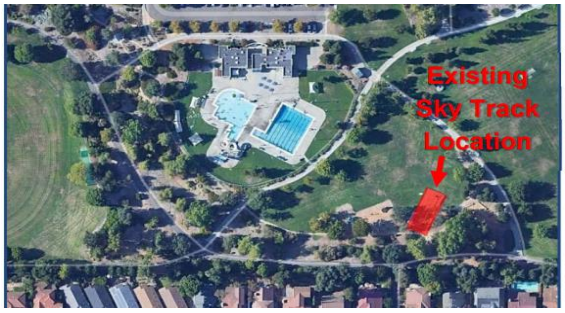


Fig. 6 – New play equipment to replace Sky Track

At the Recreation & Park Commission June 21, 2022 Special Meeting, a motion was made by T. Marigo, seconded by M. Chambers to select the Obstacle Course B equipment with complimenting colors of the existing play structures *(attachment 5 and 6)* to be placed in the existing Sky Track location. The roll call vote is as follows:

Ayes: Chambers, Herdt, Marigo, Ono, Siegel, Vink
Noes: None
Absent: LeFlore
Abstentions: None

Urban Forestry Review

The proposed location "B" is adjacent to a pathway and existing trees at Arroyo Park. The Urban Forest Manager conducted a site visit on August 3rd and evaluated the proposed "B" location for the Sky Track and equipment specifications for the installation of the amenity and does not find any conflict with existing trees or root structures.

Environmental Determination

The relocation of the Sky Track to either Location B or Location C, as well as the installation of new playground equipment at the Sky Track's current location, are exempt from environmental review under the California Environmental Quality Act, (California Public Resources Code §§ 21000, et seq., ("CEQA") and the CEQA Guidelines (14 California Code of Regulations §§ 15000, et seq.). Specifically, the relocation of the Sky Track equipment is exempt from CEQA pursuant to Class 3 and Class 4 exemptions, found at CEQA Guidelines §§ 15303 and 15304. The relocation of the Sky Track to a new location will involve minor grading activities and minor alterations to the land in the new location which will not require the removal of any healthy, mature trees, and this activity is exempt pursuant to Section 15304 of the Guidelines. The installation of the Sky Track at its new location is the type of new construction of minor facilities that is exempt from CEQA pursuant to Section 15303, which exempts the construction of small accessory structures, including "garages, carports, patios, swimming pools, and fences." The Sky Track is likewise an accessory structure, and its installation is even less likely to cause environmental impacts that the listed examples. The installation is further exempt under Class 11, Guidelines Section 15311, for the construction of minor structures accessory to existing facilities. Further, there are no "unusual circumstances" that would cause the potential for a significant impact that would preclude the use of any of the exemptions listed above. CEQA Guidelines § 15300.2. The City has conducted noise studies and the new location of the Sky Track has been found not to exceed the City's noise ordinance standards day or night.

Likewise, the installation of new equipment at the location of the Sky Track will be exempt from CEQA under Section 15303 and no unusual circumstances exist that could give rise to significant impacts related to this installation. The obstacle course equipment selected for the site is not anticipated to exceed the City's noise standards day or night.

Next Steps

Once the City Council approves the recommendations, an equipment order will be placed for the new equipment, which normally takes 8-12 weeks for manufacturing, transportation and installation. Concurrently, the Sky Track may be moved and opened sooner, and the Sky Track can be moved and equipment installed.

Attachments:

1. Arroyo Park Survey
2. Arroyo Park Survey Results

3. BAC Noise Analysis
4. AGI Noise Analysis
    a. Supplemental materials as provided by AGI to the RPC
5. Footprint for new equipment
6. Rendering of new equipment
7. Resolution

The City of Davis would like to receive feedback about future park amenity improvements at Arroyo Park. The survey will only take a few moments.

The survey will be active from March 30 to April 14, 2022. Only one response per household will be permitted. The results will be reviewed at the April 20, 2022 Recreation and Park Commission meeting.

If you have any questions, please feel free to contact: Dale Sumersille at 530-757-5626 or dsumersille@cityofdavis.org.

Thank you for your time and participation

The City of Davis would like to receive feedback about future park amenities improvements at Arroyo Park. We appreciate you and your family taking the time to fill out this short inquiry. Only one response per household will be permitted.

Do you or a family member visit/play at Arroyo Park? Yes/No

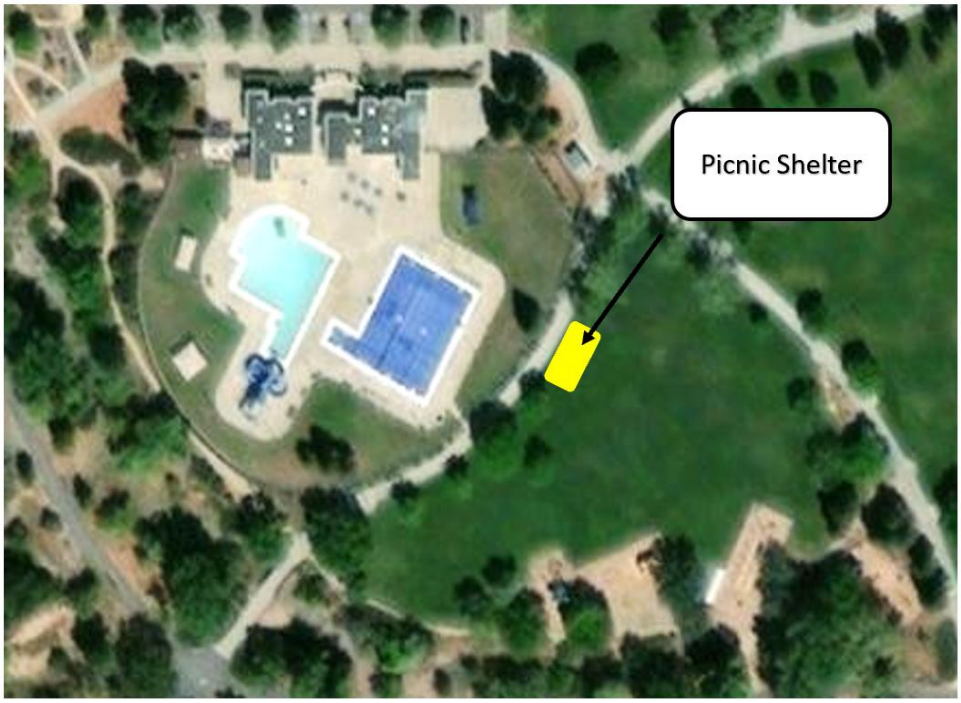
If yes, how often do you or a family member visit Arroyo Park?

i. 1 time a week
ii. 3 times a week
iii. 1-3 times a month
iv. Other

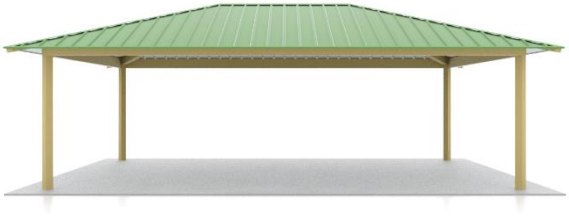
Comments:

Picnic Shelter –

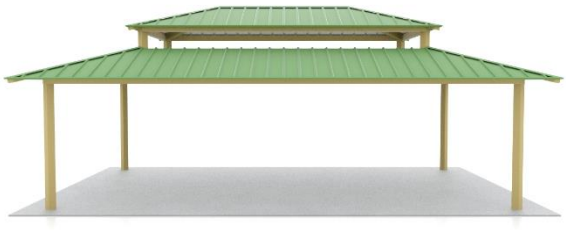
The City is a recipient of Proposition 68 RIRE grant funds and would like to seek residents' feedback regarding the shade structures. There will be two new shade structures built inside the Arroyo Pool Complex, and one outside of the complex. The first few questions will ask about color and structural preference for the picnic shelter that will be located outside of the complex. The shelter will have 4-5 picnic tables, 1-2 barbeques and trash/recycling containers. See map below where the shelter will be located:



1. Which structure do you prefer?
   Note that the current restroom structure is color pallet A and the structures inside the aquatics complex is color pallet B.
   a. Structure 1
   b. Structure 2



Structure 1



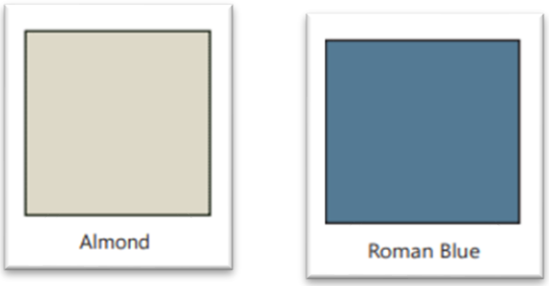
Structure 2

2. Which color pallet do you prefer:
   a. Color Pallet A
   b. Color Pallet B

Color pallet A

Frame: Surrey Beige **Roof**: Patina Green

Color pallet B



Frame: Almond **Roof**: Roman Blue

Sky Track-

The Recreation and Park Commission is seeking feedback on preferred location of the Sky Track. The Sky Track is currently located below in the park:

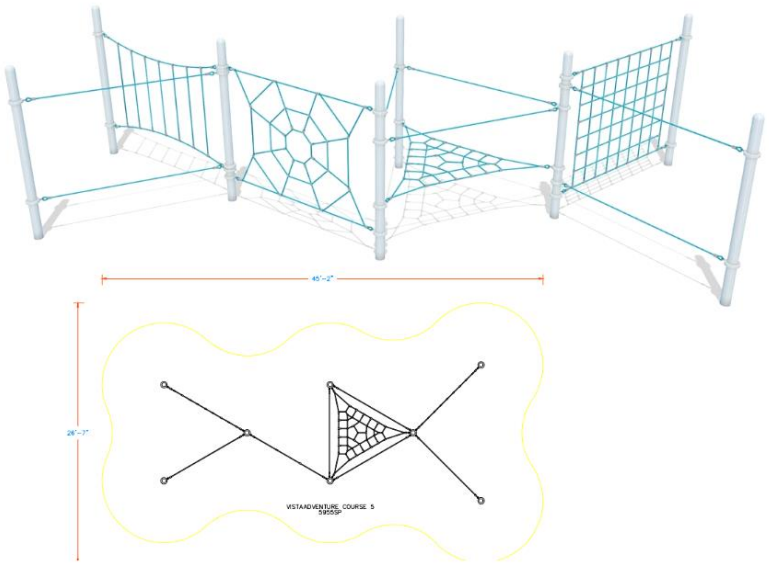
Do you have a preference of a new location? one response only

A. Location B
B. Location C
C. None of the above_____

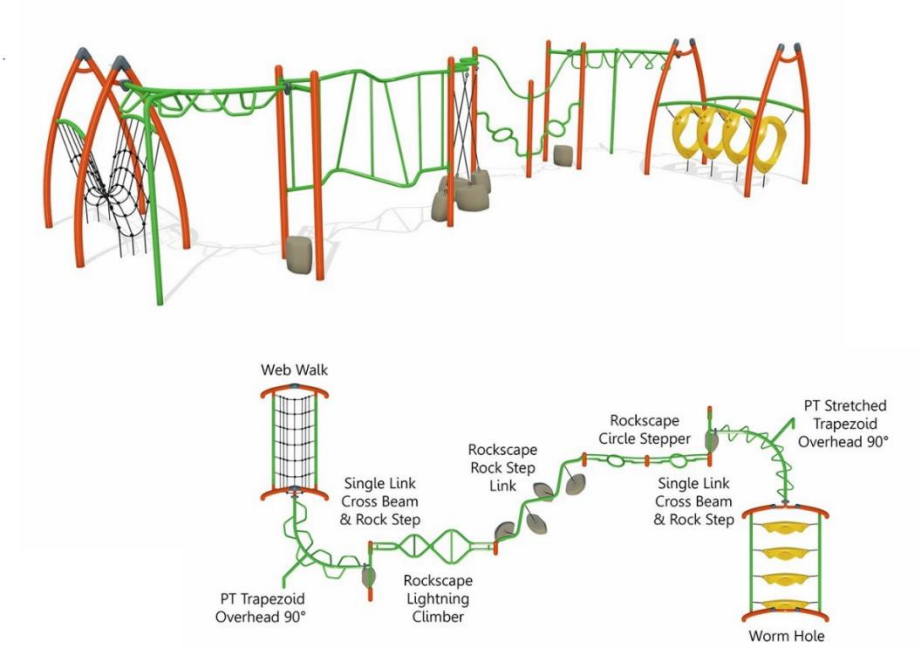
Replacement equipment -

If the Sky Track moves to another location, what type of equipment would you like to see placed in the current location? Please rank these in order 1-6, 1 is most preferred and 6 is least preferred;

1. Obstacle Course Option A



2. Obstacle Course Option B

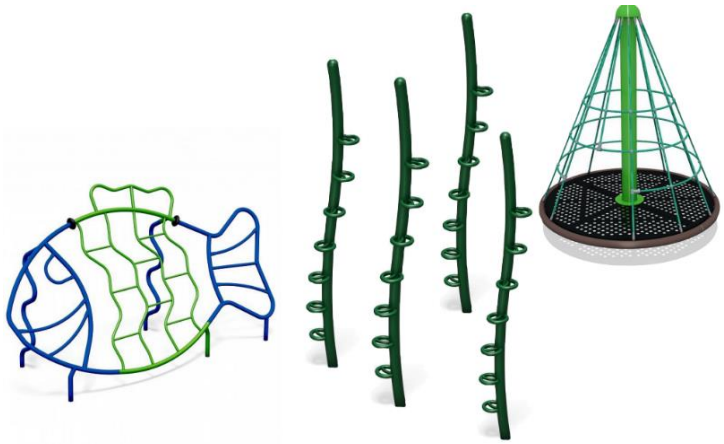


3. Nature Net Play/Wobble bridge and play house

4. Play house/imaginative play with a variety of play and game panels

5. Nature Play with Balance logs/stepping stones

6. Water Theme play (a variety of climbers and a cone spinner)



Do you have any other amenity ideas for Arroyo Park that you would like to share? If so, please comment:

_____

_____

Do you live in Davis? Y/ N

What Street do you live on: _____

If you do not live in Davis, where you live? _____

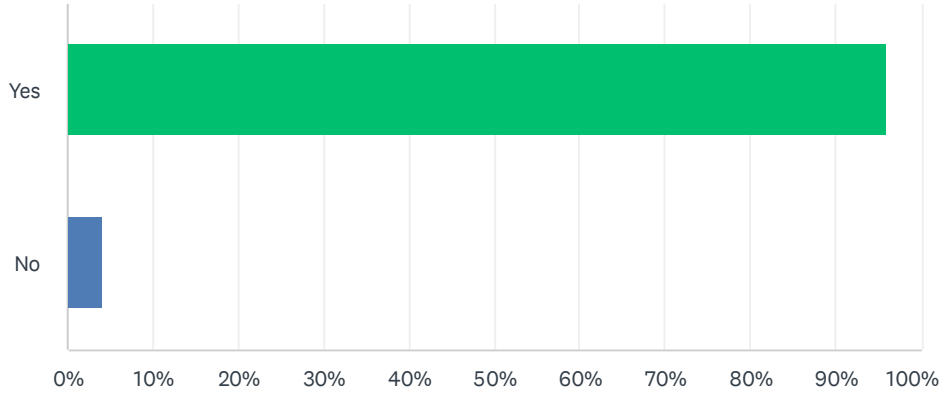
To receive project alerts, sign up for:

- Nextdoor, a City partnered neighborhood communication tool that is designed to engage residents and enhance communication in neighborhoods – Nextdoor.com

Thank you for your time!

Q1 Do you or a family member visit/play at Arroyo Park?

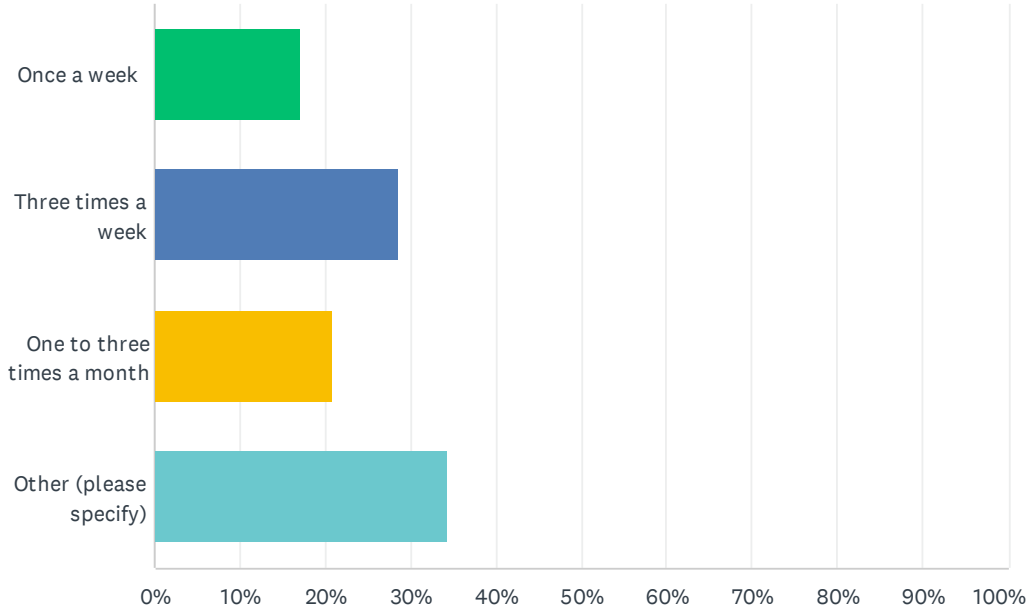
Answered: 456 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	96.05%	438
No	3.95%	18
Total Respondents: 456		

Q2 If yes, how often do you and/or family members visit Arroyo Park?

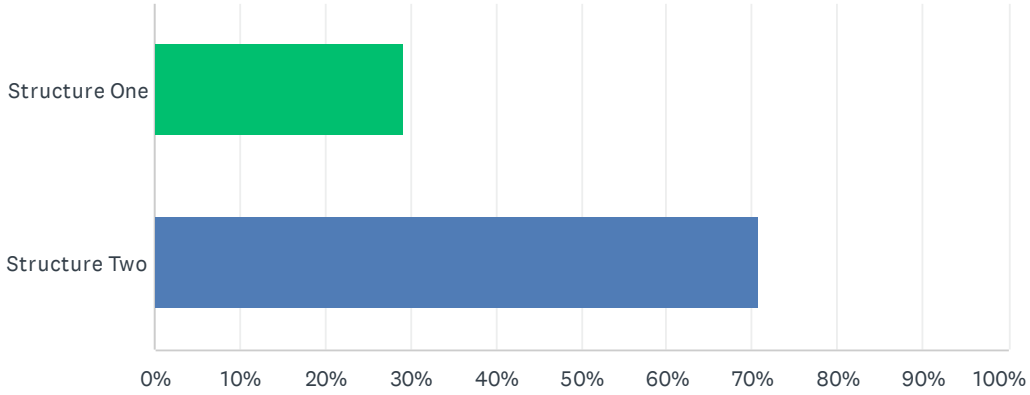
Answered: 445 Skipped: 15



ANSWER CHOICES	RESPONSES	
Once a week	17.08%	76
Three times a week	28.54%	127
One to three times a month	20.90%	93
Other (please specify)	34.38%	153
Total Respondents: 445		

Q3 Which picnic shelter structure do you prefer?

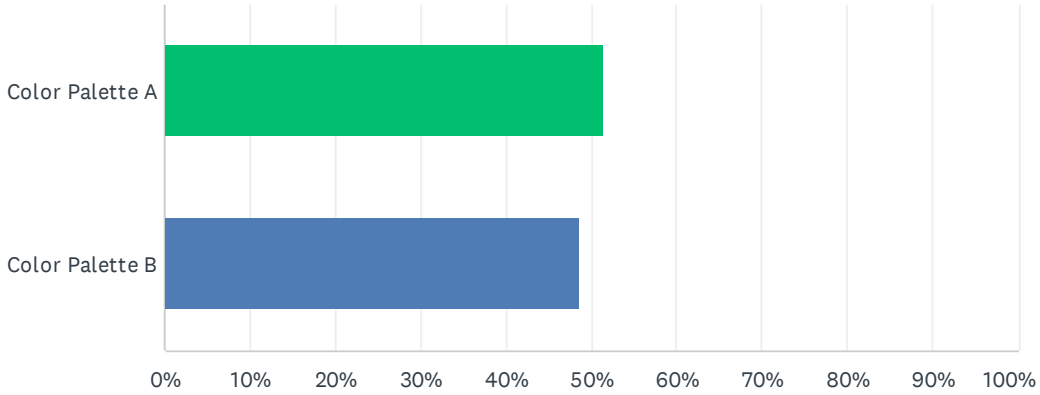
Answered: 421 Skipped: 39



ANSWER CHOICES	RESPONSES	
Structure One	29.22%	123
Structure Two	70.78%	298
TOTAL		421

Q4 What color palette do you prefer? Please note that the current restroom structure is color palette A and the structures inside the aquatics complex are color palette B.

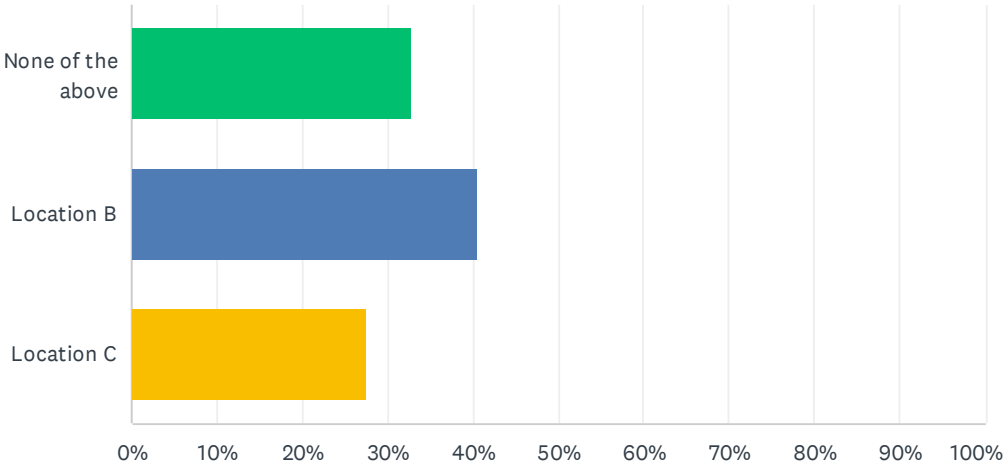
Answered: 438 Skipped: 22



ANSWER CHOICES	RESPONSES	
Color Palette A	51.37%	225
Color Palette B	48.63%	213
TOTAL		438

Q5 Do you have a preference of a new location? Please see suggested locations below in yellow - one response only please.

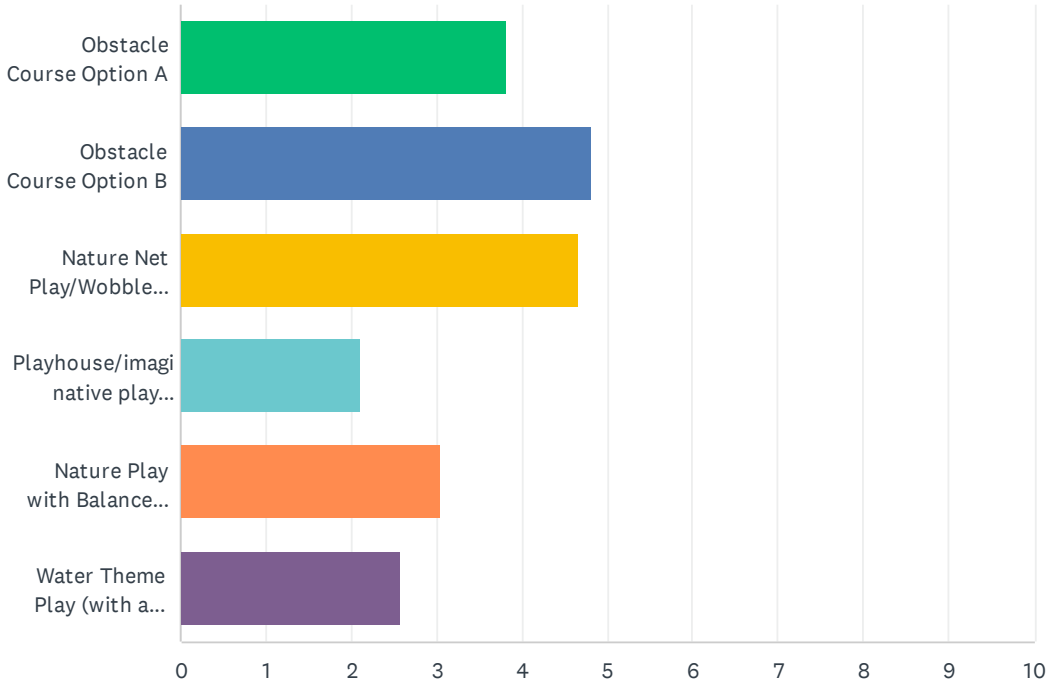
Answered: 395 Skipped: 65



ANSWER CHOICES	RESPONSES	
None of the above	32.91%	130
Location B	40.51%	160
Location C	27.59%	109
Total Respondents: 395		

Q6 If the Sky Track moves to another location, what type of equipment would you like to see placed in the current location? Please rank these in order 1-6; 1 is most preferred and 6 is least preferred.

Answered: 401 Skipped: 59



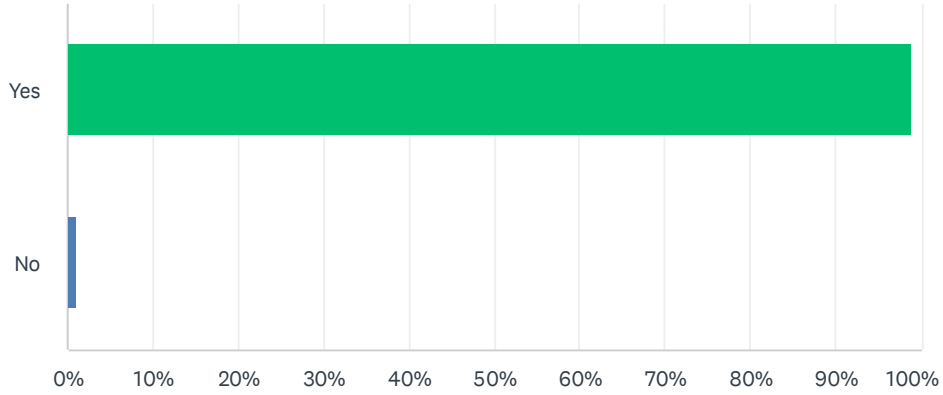
	1	2	3	4	5	6	TOTAL	SCORE
 Obstacle Course Option A	19.27% 74	17.19% 66	22.66% 87	17.97% 69	13.02% 50	9.90% 38	384	3.82
 Obstacle Course Option B	38.56% 150	30.85% 120	14.91% 58	6.68% 26	6.94% 27	2.06% 8	389	4.81
 Nature Net Play/Wobble Bridge & Playhouse	26.10% 101	34.11% 132	26.10% 101	9.04% 35	3.88% 15	0.78% 3	387	4.67
 Playhouse/imaginative play area with a variety of game/play panels	2.07% 8	4.39% 17	8.27% 32	18.60% 72	22.48% 87	44.19% 171	387	2.12
 Nature Play with Balance Logs and Stepping Stones	10.00% 39	7.69% 30	12.05% 47	28.21% 110	31.03% 121	11.03% 43	390	3.04
 Water Theme Play (with a variety of climbers and a cone spinner)	6.99% 27	4.92% 19	15.03% 58	18.65% 72	22.28% 86	32.12% 124	386	2.59

Q7 Do you have other ideas for park amenities at Arroyo Park?

Answered: 219 Skipped: 241

Q8 Do you live in Davis?

Answered: 415 Skipped: 45



ANSWER CHOICES	RESPONSES	
Yes	99.04%	411
No	0.96%	4
Total Respondents: 415		

Q9 If you do live in Davis, on what street do you live?

Answered: 402 Skipped: 58

Q10 If you do not live in Davis, where do you live?

Answered: 67 Skipped: 393

Environmental Noise Assessment

Zipline at Arroyo Park

Davis, California

BAC Job # 2019-132

Prepared For:

City of Davis

Attn: Mr. Ashley Feeney
23 Russell Blvd., Ste. 1
Davis, CA 95616

Prepared By:

Bollard Acoustical Consultants, Inc.

Paul Bollard, President

August 16, 2019

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Acoustical Consultants

Introduction

Arroyo Park is located at 2000 Shasta Drive in Davis, California. The park includes a zipline near the south-central portion of the park at the approximate location indicated on Figure 1. Photographs of the zipline are included in Appendix B of this report.

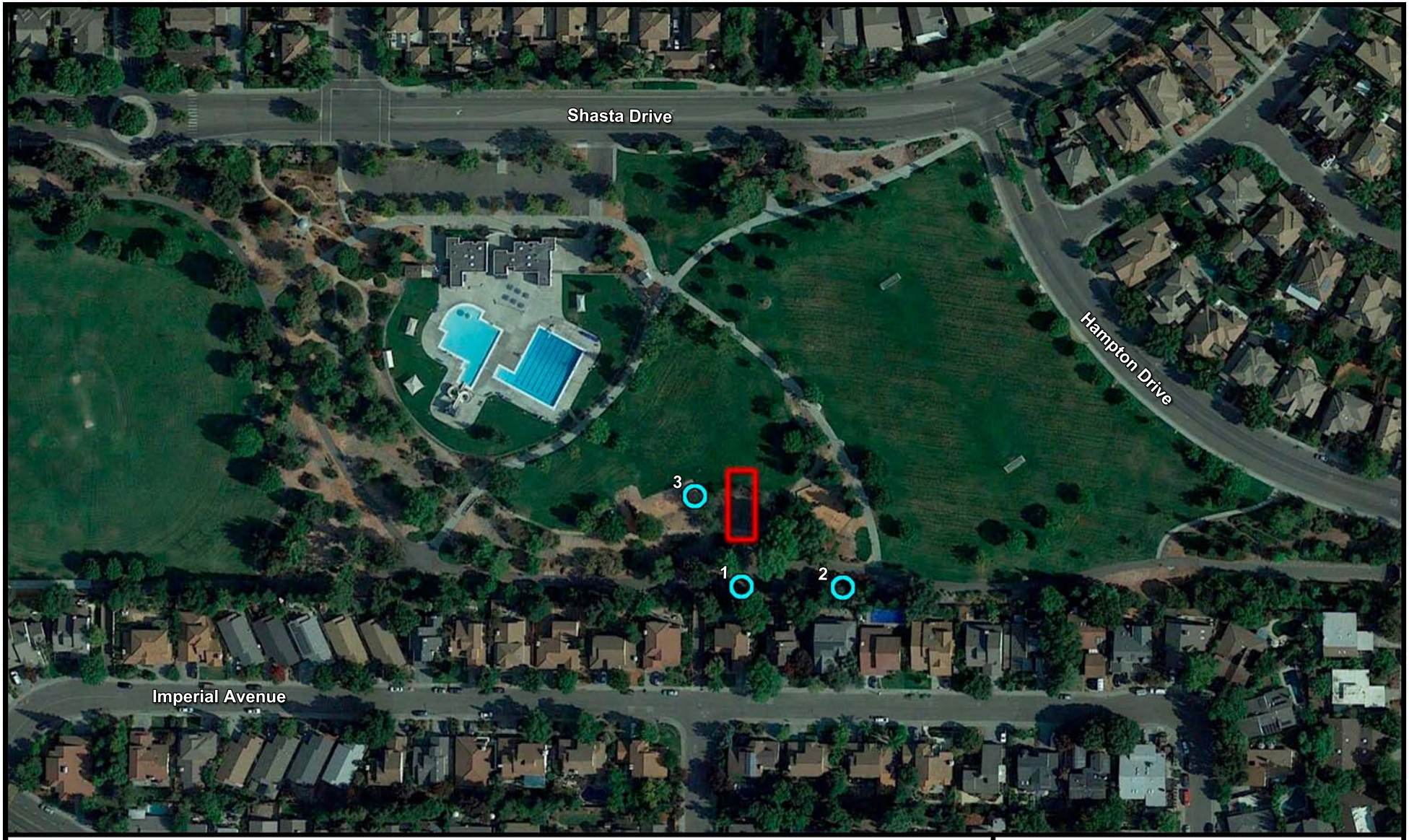
The City of Davis has retained Bollard Acoustical Consultants, Inc. (BAC) to evaluate the noise generated by zipline operations at this park, and to compare those noise levels against applicable City of Davis noise standards at the nearest residences.

Background on Noise and Acoustical Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in decibel levels correspond closely to human perception of relative loudness.

The perceived loudness of sound is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels. Please see Appendix A for definitions of acoustical terminology used in this report. Figure 2 illustrates common noise levels associated with various sources.



Legend

Arroyo Park Zipline Location (Approximate)

Short-Term Noise Level Measurement Location

N

Scale (feet)

0 75 150

Arroyo Park Zipline Monitoring
Davis, California

Project Area

Figure 1

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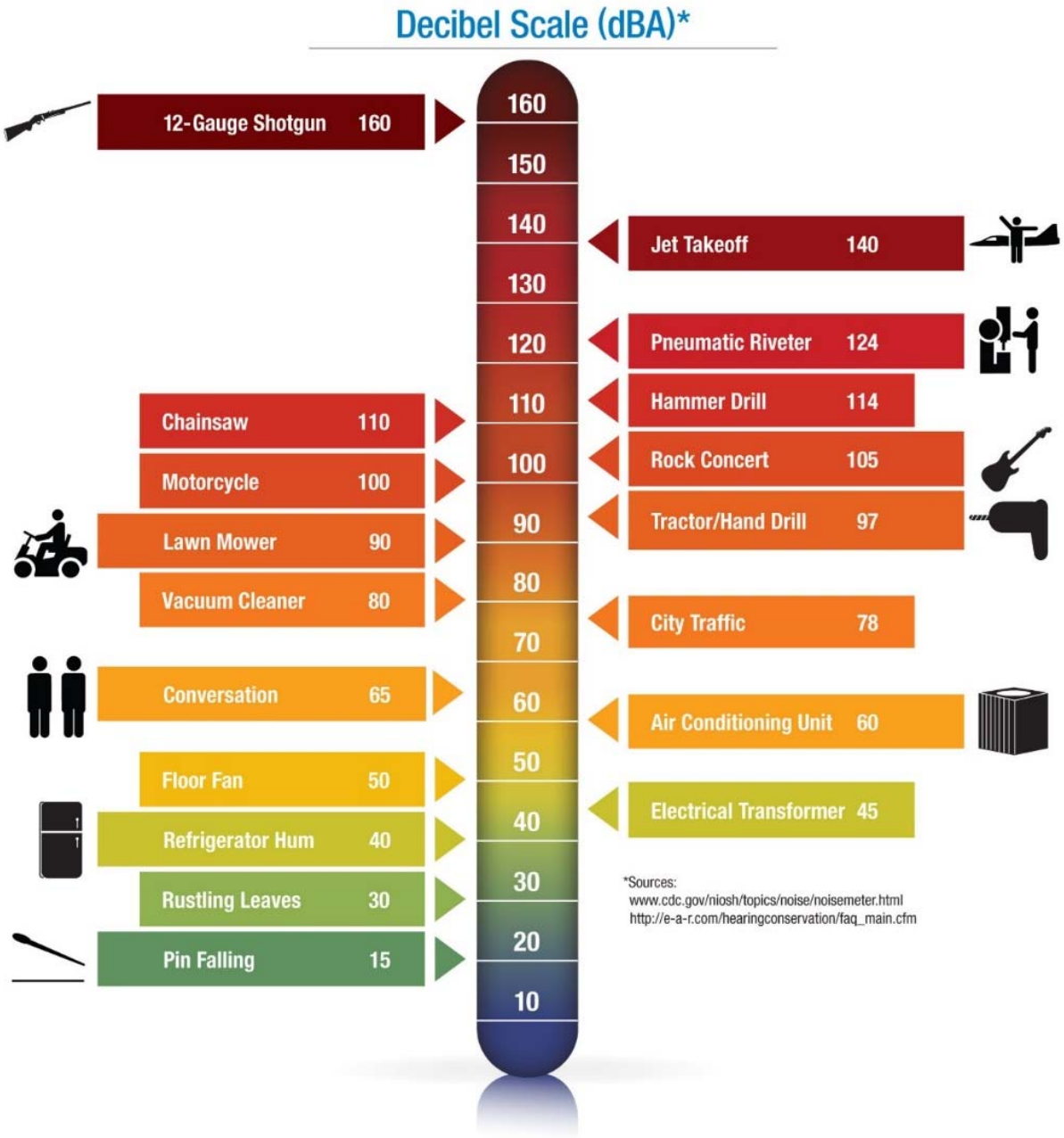
Figure 2
Typical A-Weighted Sound Levels of Common Noise Sources



Criteria for Acceptable Noise Exposure

City of Davis Noise Ordinance

The City of Davis Municipal Code Sec. 24.02.020 establishes noise level limits measured at the property boundary at the point closest to the noise source for various land use types for both daytime and nighttime periods. Those noise limits are shown in Table 1 below. The noise level limits shown below are expressed in terms of hourly average noise levels, or L_{eq}.

Table 1
City of Davis Municipal Code Sec. 24.02.020 – Noise Limits
Davis, California

Land Use	Time Period	Average Noise Level
Residential	9 p.m – 7 a.m.	50
	7 a.m – 9 p.m.	55
Commercial, Industrial &	9 p.m – 7 a.m.	55
Core Commercial	7 a.m – 9 p.m.	60
High Noise Corridor	Anytime	65
Source: City of Davis Noise Regulations		

Because the nearest sensitive uses to the zipline court are residences to the immediate south of the park boundary, and because the zipline activities are limited to daytime hours, the noise standard which would be applicable to this project is a 55 dB hourly average (Leq) at the nearest residential property boundaries.

Zipline Noise Measurement Methodology

To quantify noise generated by zipline activities at Arroyo Park, noise level measurements were conducted on the morning of July 22, 2019. During the measurement period, the two zipline tracks were operated in a near continual fashion by persons of varying weights to simulate worst-case conditions.

Noise level measurements were conducted at the 3 positions in the immediate zipline area indicated on Figure 1. Noise measurement Sites 1 and 2 represent the locations of residences to the immediate south of the zipline. Noise measurement site 3 was located to the east of the zipline area. Appendix B shows representative photographs of the zipline noise measurement program.

Noise level measurement equipment consisted of a Larson Davis Laboratories (LDL) Model 820 and 831 precision integrating sound level meters equipped with LDL Model 2560 microphones. The meters were calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

Weather conditions during the testing were typical for the period, with warm morning temperatures (80ºF), moderate relative humidity (50%), calm winds and clear skies.

Zipline Test Results

The results of the zipline noise measurements are summarized in Table 2 and are presented graphically in Figures 3-6.

Table 2
Measured Zipline Noise Test Results Summary
Arroyo Park - Davis California – July 22, 2019

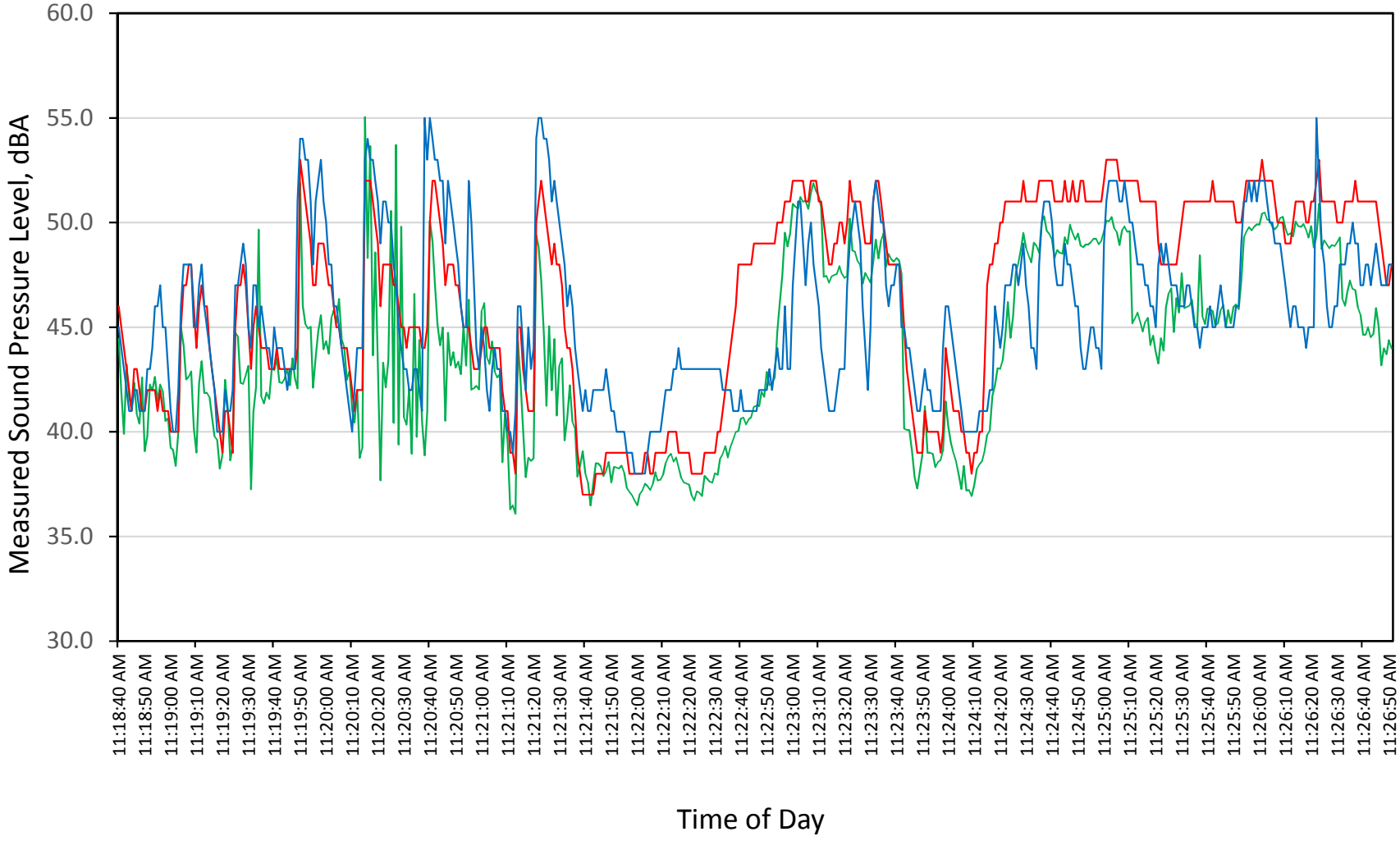
Site	Distance from Zipline (feet)	Measured Average Noise Level, Leq, dB
1	120	46
2	135	44
3	75	46

Source: Bollard Acoustical Consultants, Inc. (BAC) 2019

As indicated on Figure 1, Sites 1 and 2 were located along the southern park boundary. As a result, the City's 55 dBA Leq daytime noise level standard would be applicable at those locations. Site 3 was located within the play area to the immediate west of the zipline area. Although the City noise standards would not be applicable at Site 3, this location was used to establish an additional data point location for the survey.

Table 2 indicates that the measured average zipline noise levels were satisfactory relative to the City's 55 dB standard at the nearest residences by a considerable margin (9-11 dB below the standard). The Figure 3 data indicate that the measured maximum noise levels during the zipline usage did not exceed 55 dBA Lmax. Because the instantaneous maximum noise levels did not exceed 55 dBA at any time during the zipline noise test, it would not be possible for average noise levels to exceed the City's 55 dBA daytime level, even with constant usage of both zipline tracks concurrently.

Figure 3
Arroyo Park Zipline Noise Measurement Results
July 22, 2019



BOLLARD Acoustical

Conclusions

This analysis concludes that noise generated by the zipline play equipment at the Arroyo Park in Davis is satisfactory relative to the City's noise ordinance standards. As a result, no additional noise mitigation measures would be required of this play equipment.

This concludes BAC's environmental noise assessment for the Arroyo zipline courts project in Davis, California. Please contact BAC at (916) 663-0500 or paulb@bacnoise.com with any questions regarding this assessment.

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

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Legend

- A Arroyo Park Zipline - Facing Northwest
- B Noise Measurement Site 1 - Facing South
- C Noise Measurement Site 3 - Facing West
- D Noise Measurement Site 3 - Facing East

Note: Short-term monitoring completed on July 22, 2019.

Arroyo Park Zipline Monitoring
Davis, California

Noise Survey Photographs

Appendix B

BOLLARD Acoustical Consultants

ARROYO COMMUNITY PARK
SKY TRACK
NOISE STUDY

MARCH 1, 2022

PREPARED FOR:
CITY OF DAVIS

PREPARED BY:
ACOUSTICS GROUP, INC.
CONSULTANTS IN ACOUSTICS, NOISE & VIBRATION

Arroyo Community Park
Sky Track
Noise Study

Prepared for:
Dale Sumersille
City of Davis
Recreation and Parks Director
23 Russell Blvd.
Davis, CA 95616

Prepared by:
ROBERT WOO – Principal Acoustical Consultant, INCE
OMAR RAMOS – Associate Acoustical Consultant

ACOUSTICS GROUP, INC.
CONSULTANTS IN ACOUSTICS, NOISE & VIBRATION
(877) 595-9988

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EXECUTIVE SUMMARY

Acoustics Group, Inc., (AGI) was retained to conduct a noise study for the Arroyo Community Park Sky Track play equipment in Davis, CA. AGI has reviewed the City of Davis Noise Standards, conducted noise measurements, analyzed the noise levels from alternative Sky Track locations, and assessed the impact of the noise to determine compliance with the Exterior Noise Standards.

The noise level at the existing Sky Track location would be as high as 57.2, 55.5, and 66.3 dBA at NM1, NM2, and NM3, respectively, when teenagers operate the equipment. At NM1 and NM2 the noise from daytime and nighttime operations would exceed the City of Davis Daytime and Nighttime Standard of 55 and 50 dBA, respectively.

The noise level if the Sky Track were relocated to Alternative Locations A through D would range from 34.2 to 49.4, 44.6 to 49.5, 47.4 to 49.5, and 45.4 to 53.2 dBA, at the nearest residential boundaries, respectively. At Sky Track Locations A through D, the noise from daytime operations would comply with the City of Davis Daytime Standard of 55 dBA at the nearest residences. However, at Location D, the noise from nighttime operations would exceed the City of Davis Daytime Standard of 50 dBA at the north residential property line.

This report has been organized into multiple sections for ease of reference. Section 1 introduces the Project and provides a general discussion on the Project Components. Section 2 discusses Noise Fundamentals, and Section 3 presents the Noise Standards. Section 4 summarizes the noise measurement data. Section 5 discusses the Noise Analysis, and Section 6 discusses the Impact Assessment. Section 7 discusses the Conclusion.

1. INTRODUCTION

The City of Davis Recreation and Parks Department retained Acoustics Group, Inc. (AGI) to measure and assess the noise produced from the Sky Track Play Equipment at Arroyo Community Park. As part of this effort, AGI is also tasked with evaluating the noise that would be produced by the Sky Track if relocated to four (4) alternative locations within Arroyo Community Park. Refer to Figure 1 for the existing location of the Sky Track Play Equipment. Refer to Figure 2 for the proposed Locations of the Future Sky Track. Land uses immediately surrounding the site are residential and a school. The main noise concern is the Sky Track operation affecting the existing nearby residential properties to the south and potentially nearby residences located near alternative locations.

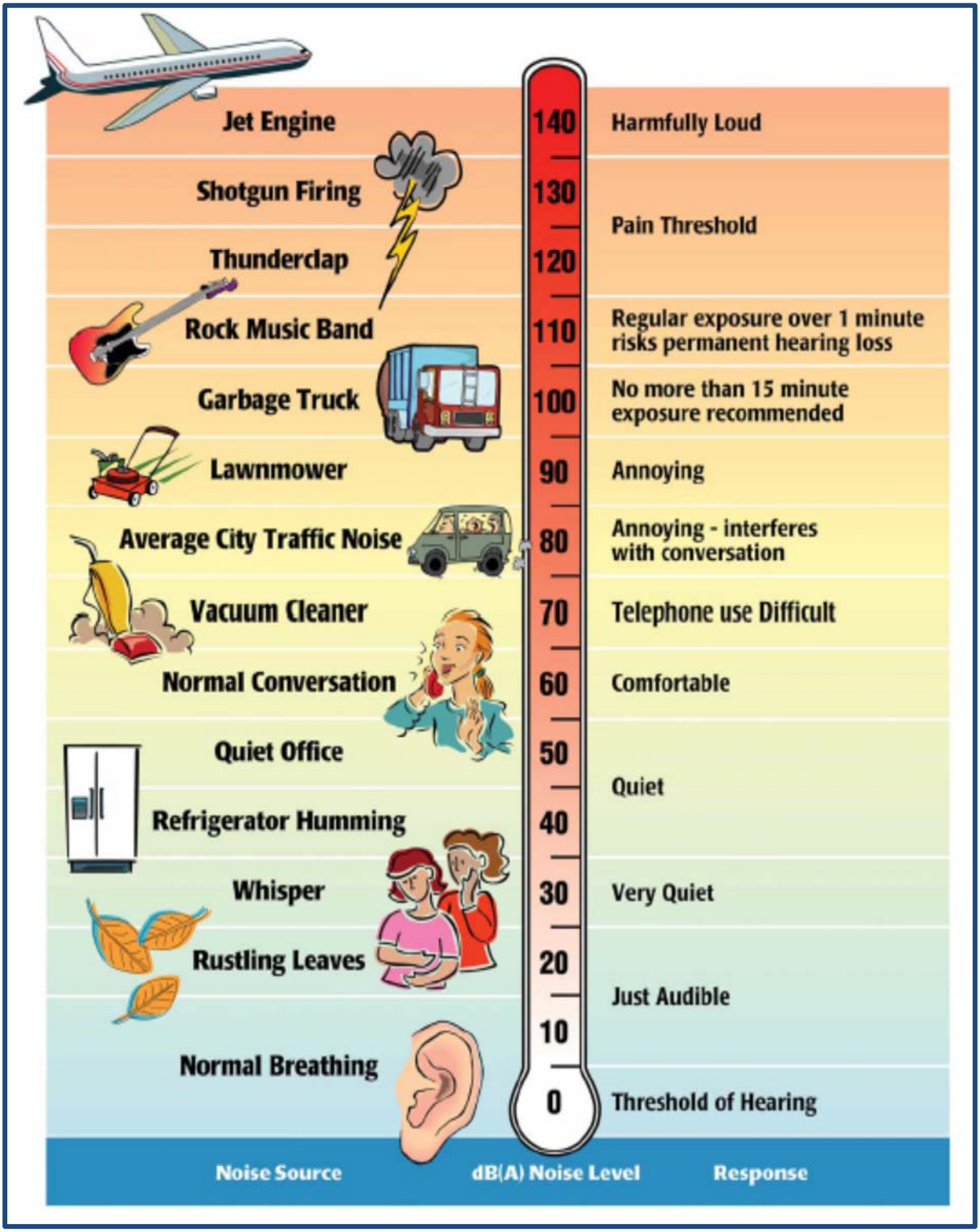
Figure 1. Existing Sky Track Location

Figure 2. Proposed Sky Track Locations

2. NOISE

The magnitude by which noise affects its surrounding environment is measured on a logarithmic scale in decibels (dB). Because the human ear is limited to hearing a specific range of frequencies, the A-weighted filter system is used to form relevant results. A-weighted sound levels are represented as dBA. Figure 3 shows typical A-weighted exterior and interior noise levels that occur in human environments.

Several noise metrics have been developed to evaluate noise. L_{eq} is the energy average noise level and corresponds to a steady-state sound level that has the same acoustical energy as the sum of all the time-varying noise events. L_{max} is the maximum noise level measured during a sampling period, and L_{xx} are the statistical noise levels that are exceeded xx-% of the time of the measurement. L_{50} is the average noise level that is exceeded 50% of the time, 30 minutes in a 60 minute period.



Source: Melville Branch and R. Beland, 1970. EPA/ONAC 550/9-74-004, March 1974.

Figure 3. Typical A-weighted Noise Levels

3. NOISE STANDARDS

The City of Davis Municipal Code has adopted regulations for the purpose of protecting citizens from potential hearing damage and annoyance associated with noise (Section 24.02.030). The City's Code limits exterior residential noise levels to 55 and 50 dBA during the daytime and nighttime, respectively. Refer to Table 1 for the City of Davis Noise Standards.

Table 1. City of Davis Noise Standards

Receiving Land Use Category	Time Period	Noise Standard Leq, dBA
Residential	Daytime (7AM – 10PM)	55
	Nighttime (10PM – 7AM)	50

4. EXISTING NOISE LEVELS

AGI conducted a site visit on December 2, 2021, to observe the project site and to conduct three short-term (NM1-3) noise measurements to document noise levels produced during Sky Track operations. The Sky Track consists of a swing and a separate seat that are suspended on parallel tracks and riders are pushed from end to end on the track. Children, teenagers, and adults played on the Sky Track during the survey, with the highest noise produced by teenagers. At NM1, NM2, and NM3, Sky Track noise levels ranged from 45.1 to 55.5, 45.3 to 54.0, and 53.5 to 62.1 dBA, respectively. At the nearfield 1- foot from the track, the maximum noise level was 81.4 dBA. Table 2 lists the measured noise levels from the survey. Figure 4 shows the location of the noise measurements.

Based on the measurement data from NM1, the existing noise from Sky Track operations slightly exceeds the City's Daytime Noise Standard of 55 dBA. At NM2, the measurement data was just below the City's Daytime Noise Standard of 55 dBA.

Table 2. Measured Sky Track Noise

Description	NM1 LAeq, dBA	NM2 LAeq, dBA	NM3 LAeq, dBA	Near Field LAeq, dBA
Kids on Swing and Seat	51.2	49.7	56.5	--
Adult pushing Kids Seat	50.4	49.9	55.4	--
2 Adults pushing Kids 2 Swing and Seat	53.2	53.1	60.2	--
1 Adult pushing Kid Swing	53.2	51.8	56.2	--
1 Adult pushing Teenage Kid Swing	50.5	46.3	53.5	--
Adult on Seat	53.8	48.1	62.1	--
Adult on Swing	52.1	49.2	55.7	--
Teenage Kid on Seat	55.5	54.0	61.5	--
Teenage Kid on Swing	49.3	49.6	56.0	--
Teenage Kid Seat 1ft away	47.0	46.1	--	72.6
Teenage Kid Seat 1ft away from Track	49.5	50.4	--	81.4
Teenage Kid Swing 1ft away	45.1	45.7	--	69.0
Teenage Kid Swing 1ft away	47.4	45.3	--	72.3
Teenage Kid Swing 1ft away from Track	52.3	50.3	--	81.1
Teenage Kid Swing 1ft away	49.5	48.7	--	75.1

Figure 4. Noise Measurement Locations

5. NOISE ANALYSIS

Operations Noise

AGI acoustical data and advanced acoustic modeling technologies were used to evaluate and assess the Sky Tracks' noisiest operations at the existing location and at alternative locations within the park. The CadnaA Noise Prediction Model was used to estimate the highest noise associated with the Sky Track, specifically with teenagers seated and swinging. . CadnaA uses industry-accepted propagation algorithms and user-defined sound power based on ISO 9613-2 standards. ISO 9613-2 is an internationally recognized standard that establishes a method for calculating the attenuation of noise from outdoor propagation, to predict the levels of noise at a distance from a variety of sources. The calculations account for classical sound wave divergence, plus attenuation factors resulting from air absorption, basic ground effects, and barrier/structure shielding. Air absorption was considered to be under “standard day” conditions of 65° F and 70% relative humidity. The site location was inputted into CadnaA to establish the x, y, and z site geometrics for the analysis. The noise generated by future operations was calculated by inputting acoustical sources as line sources with a constant level of activity. Four proposed locations were evaluated with the noise levels of the teenager on the swing and seat because it was the highest noise level measured:

The existing Sky Track is located on the southern side of Arroyo Community Park. Although this condition was not measured, the noise level from teenagers seated and swinging simultaneously could produce the highest noise levels. This condition was modeled and determined to be as high as 57.2, 55.5, and 66.3 dBA at NM1, NM2, and NM3, respectively. If the Sky Track were relocated to Alternative Location A, the Sky Track noise level would be as high as 36.9, 35.9, 37.6, 49.5, 49.3, 34.2, 57.7, and 41.4 dBA at NM1, NM2, NM3, the residences to the north, south, east, west and pool area, respectively. At Alternative Location B, the noise level would be as high as 49.2, 47.7, 54.3, 49.1, 49.5, 44.6, and 61.4 dBA at NM1, NM2, NM3, the residences to the north, south, east, and pool area, respectively. If the Sky Track were relocated to Alternative Location C, the noise level would be as high as 48.8, 48.3, 52.6, 49.5, 48.7, 47.4, 36.0, and 53.4 dBA at the same receptors, respectively. At Alternative Location D, the noise level would be as high as 46.3, 45.4, 49.6, 53.2, 46.5, 45.4, and 56.5 dBA at NM1, NM2, NM3, the residences to the north, south, east, and pool area, respectively. Refer to Table 3 for a summary of the Sky Track noise levels for various receptor locations.

Table 3. Arroyo Community Park Sky Track Predicted Operating Noise Levels

Receptor	Sky Track Noise Level Location, dBA	Predicted Sky Track Noise Level at Alternative Locations, dBA			
		Location A	Location B	Location C	Location D
1880 Imperial Ave Rear Property Line (NM1)	57.2	36.9	49.2	48.8	46.3
1868 Imperial Ave Rear Property Line (NM2)	55.5	35.9	47.7	48.3	45.4
Playground West of Sky Track (NM3)	66.3	37.6	54.3	52.6	49.6
Nearest Residences to the North Property Line	--	49.5	49.1	49.5	53.2
Nearest Residences to the South Property Line	--	49.3	49.5	48.7	46.5
Nearest Residences to the East Property Line	--	34.2	44.6	47.4	45.4
Nearest Residences to the West Property Line	--	57.7	--	36.0	--
Arroyo Community Pool	--	41.4	61.4	53.4	56.5

6. ASSESSMENT

Operations Noise

Existing Location

The Sky Track noise level would be as high as 57.2, 55.5, and 66.3 dBA at NM1, NM2, and NM3, respectively. The operational noise at NM1 and NM2 would exceed the City's Daytime Noise Standard of 55 dBA. Refer to Table 4 for the existing Sky Track location Noise Levels and Impact Assessment.

Table 4. Existing Location Impact Assessment

Receptor	Predicted Noise Level at Sky Track Location, dBA	City of Davis Residential Noise Standard (Day/ Nighttime), dBA	Impact Assessment
	Existing Location		
1880 Imperial Ave Rear Property Line (NM1)	57.2	55/50	Exceedance/ Exceedance
1868 Imperial Ave Rear Property Line (NM2)	55.5	55/50	Exceedance/ Exceedance
Playground West of Sky Track (NM3)	66.3	--	--

Alternative Location A

This Sky Track alternative location is along the western border of the park, as shown in previous Figure 2. The Sky Track would be located 304 feet from the homes to the north and 307 feet from the homes to the south. The Sky Track noise level would be 36.9, 35.9, 37.6, 49.5, 49.3, 34.2, 57.7, and 41.4 dBA at NM1, NM2, NM3, residences to the north, south, east, west, and pool area, respectively. The operational noise at the nearest residential receptors, NM1, NM2, north, south, east, and west residential property line would comply with the City of Davis Daytime and Nighttime Noise Standard of 55, and 50 dBA, respectively. Approximately 126 feet west of alternative location A is Patwin Elementary School, and the nearest exterior classroom setback would experience Sky Track noise as high as 57.7 dBA. Refer to Table 5 for the Alternative Location A Sky Track Noise Levels and Impact Assessment.

Table 5. Alternative Location A Impact Assessment

Receptor	Predicted Noise Level at Alternative Sky Track Location, dBA Location A	City of Davis Residential Noise Standard (Day/ Nighttime), dBA	Impact Assessment
1880 Imperial Ave Rear Property Line (NM1)	36.9	55/50	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	35.9	55/50	Compliance/ Compliance
Playground West of Sky Track (NM3)	37.6	--	--
Nearest Residences to the North Property Line	49.5	55/50	Compliance/ Compliance
Nearest Residences to the South Property Line	49.3	55/50	Compliance/ Compliance
Nearest Residences to the East Property Line	34.2	55/50	Compliance/ Compliance
Patwin Elementary School Classroom Setback	57.7	--	--
Arroyo Community Pool	41.4	--	--

Alternative Location B

Alternative Sky Track Location B is located near the center of the park, just east of the community pool. Refer to previous Figure 2 for the location of Alternative Location B. The Sky Track noise level would be 49.2, 47.7, 54.3, 49.1, 49.5, 44.6, and 61.4 dBA at NM1, NM2, NM3, residences to the north, south, east, and pool area, respectively. The operational noise at the nearest residential receptors would comply with the City of Davis Daytime and Nighttime Noise Standard of 55 and 50 dBA, respectively. Refer to Table 6 for the Location B Sky Track Noise Levels and Impact Assessment.

Table 6. Alternative Location B Impact Assessment

Receptor	Predicted Noise Level at New Sky Track Location, dBA	City of Davis Residential Noise Standard (Day/ Nighttime), dBA	Impact Assessment
	Location B		
1880 Imperial Ave Rear Property Line (NM1)	49.2	55/50	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	47.7	55/50	Compliance/ Compliance
Playground West of Sky Track (NM3)	54.3	--	--
Nearest Residences to the North Property Line	49.1	55/50	Compliance/ Compliance
Nearest Residences to the South Property Line	49.5	55/50	Compliance/ Compliance
Nearest Residences to the East Property Line	44.6	55/50	Compliance/ Compliance
Arroyo Community Pool	61.4	--	--

Alternative Location C

This Sky Track alternative location is in the middle of the park and just east of the walkway bisecting the park, as shown in previous Figure 2. The Sky Track would be located 304 feet from the homes to the north and 307 feet from the homes to the south. Sky Track noise would be 48.8, 48.3, 52.6, 49.5, 48.7, 47.4, 36.0, and 53.4 dBA at NM1, NM2, NM3, residences to the north, south, east, Patwin Elementary classroom, and pool area, respectively. The operational noise at the nearest residential receptors would comply with the City of Davis Daytime and Nighttime Noise Standard of 55 and 50 dBA, respectively. Refer to Table 7 for the Location C Sky Track Noise Levels and Impact Assessment.

Table 7. Alternative Location C Impact Assessment

Receptor	Predicted Noise Level at New Sky Track Location, dBA Location C	City of Davis Residential Noise Standard (Day/ Nighttime), dBA	Impact Assessment
1880 Imperial Ave Rear Property Line (NM1)	48.8	55/50	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	48.3	55/50	Compliance/ Compliance
Playground West of Sky Track (NM3)	52.6	--	--
Nearest Residences to the North Property Line	49.5	55/50	Compliance/ Compliance
Nearest Residences to the South Property Line	48.7	55/50	Compliance/ Compliance
Nearest Residences to the East Property Line	47.4	55/50	Compliance/ Compliance
Patwin Elementary School Classroom Setback	36.0	--	--
Arroyo Community Pool	53.4	--	--

Alternative Location D

Alternative Sky Track Location D is located near the northern boundary of the park, just east of the community pool as depicted in previous Figure 2. The Sky Track noise level would be 46.3, 45.4, 49.6, 53.2, 46.5, 45.4, and 56.5 dBA at NM1, NM2, NM3, residences to the north, south, east, and pool area, respectively. The operational noise at the nearest residential receptors, NM1, NM2, South Residential Property Line, and East Residential Property Line would comply with the City of Davis Daytime Noise Standard of 55; however nighttime operations would exceed the noise standard at one location. The operational noise at the North residential receptor property line would exceed the City of Davis Nighttime Noise Standard of 50 dBA. Refer to Table 8 for the Location D Sky Track Noise Levels and Impact Assessment.

Table 8. Location D Impact Assessment

Receptor	Predicted Noise Level at New Sky Track Locations, dBA	City of Davis Residential Noise Standard (Day/ Nighttime), dBA	Impact Assessment
	Location D		
1880 Imperial Ave Rear Property Line (NM1)	46.3	55/50	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	45.4	55/50	Compliance/ Compliance
Playground West of Sky Track (NM3)	49.6	--	--
Nearest Residences to the North Property Line	53.2	55/50	Compliance/ Exceedance
Nearest Residences to the South Property Line	46.5	55/50	Compliance/ Compliance
Nearest Residences to the East Property Line	45.4	55/50	Compliance/ Compliance
Arroyo Community Pool	56.5	--	--

7. CONCLUSION

AGI has conducted a noise study of the Arroyo Community Park Sky Track Play Equipment in Davis, CA. The Project's Site Plan has been reviewed, noise measurements conducted, noise levels analyzed, and an impact assessment performed to determine compliance with the City of Davis Noise Standards.

The noise level at the existing Sky Track location would be as high as 57.2, 55.5, and 66.3 dBA at NM1, NM2, and NM3, respectively, when teenagers operate the equipment. At NM1 and NM2, the noise from daytime and nighttime operations would exceed the City of Davis Daytime and Nighttime Standard of 55 and 50 dBA, respectively.

The noise levels associated with relocating the Sky Track to alternative Locations A through D be range from 34.2 to 49.4, 44.6 to 49.5, 47.4 to 49.5, and 45.4 to 53.23, at the nearest residential boundaries, respectively. At Location A through D, the noise from daytime operations would comply with the City of Davis Daytime Standard of 55 dBA at the nearest residences. However, at Location D, the noise from nighttime operations would exceed the City of Davis Daytime Standard of 50 dBA at the north residential property line.

REFERENCES

1. Melville Branch and R. Beland, 1970. EPA/ONAC 550/9-74-004, March 1974.
2. City of Davis Noise Ordinance

APPENDIX

FIELD DATA SHEETS & MEASUREMENT DATA

CITY OF DAVIS NOISE ORDINANCE

MODELING INPUT & OUTPUT

FIELD DATA SHEETS & MEASUREMENT DATA

NOISE MONITORING FIELD DATA SHEET

Project:	**Arroyo Community Park Sky Track**	**Date:**	**12/2/2021**
Loc:	**NM1**		
SLM:	**Brüel & Kjær 2250**	**SN:**	**3023677**
Mic:	**Brüel & Kjær 4189**	**SN:**	**3100242**
P/A:	**Brüel & Kjær ZC0032**	**SN:**	**26386**

Octave Band Center Frequency, dB

Start Time	Stop Time	31.5	63	125	250	500	1000	2000	4000	8000	Leq, dBA	Distance from Source, ft	Notes
3:27:00 PM	3:30:00 PM	52.8	50.8	42.5	36.3	43.5	47.7	45.7	39.2	27.7	51.2	127	Kids on Swing and Seat
3:33:00 PM	3:35:00 PM	54.2	52.2	45.2	37.9	45.1	47.5	43.4	36.5	32.0	50.4	127	Adult pushing Kids Seat
3:37:00 PM	3:39:00 PM	55.5	51.7	45.7	40.5	48.1	50.1	46.6	38.3	31.8	53.2	127	2 Adults pushing Kids 2 Swing and Seat
3:39:01 PM	3:43:00 PM	54.4	53.0	45.8	39.5	49.3	49.3	47.1	38.7	29.8	53.2	127	1 Adult pushing Kid Swing
3:44:33 PM	3:45:04 PM	52.0	51.0	43.3	35.8	42.7	47.3	43.4	41.5	29.8	50.5	127	1 Adult pushing Teenage Kid Swing
3:48:15 PM	3:48:45 PM	52.4	49.9	42.7	36.9	42.8	49.8	49.3	41.3	30.0	53.8	127	Adult on Seat
3:49:51 PM	3:50:21 PM	52.9	50.8	55.3	43.3	46.6	47.1	47.1	36.3	27.6	52.1	127	Adult on Swing
3:50:28 PM	3:50:56 PM	52.7	51.5	63.1	53.6	53.8	50.7	47.2	35.9	27.6	55.5	127	Teenage Kid on Seat
3:51:21 PM	3:51:51 PM	52.7	51.8	46.8	40.7	47.7	44.9	42.3	33.7	27.9	49.3	127	Teenage Kid on Swing
3:55:48 PM	3:56:18 PM	57.2	51.5	42.9	37.3	41.6	42.7	42.0	33.0	22.8	47.0	127	Teenage Kid Seat 1ft away
3:56:38 PM	3:56:58 PM	51.5	49.0	44.0	40.9	48.4	45.1	41.7	34.2	24.3	49.5	127	Teenage Kid Seat 1ft away from Track
3:57:12 PM	3:57:34 PM	53.0	48.2	40.1	33.9	40.3	41.1	39.6	31.0	20.7	45.1	127	Teenage Kid Swing 1ft away
3:57:42 PM	3:58:26 PM	54.5	48.3	40.5	35.5	43.7	43.4	41.4	32.0	26.5	47.4	127	Teenage Kid Swing 1ft away
3:58:57 PM	3:59:07 PM	51.3	49.3	42.1	40.4	49.6	48.2	45.9	38.5	27.7	52.3	127	Teenage Kid Swing 1ft away from Track
3:59:28 PM	3:59:57 PM	51.1	49.5	44.1	38.8	44.9	44.7	44.2	37.9	25.1	49.5	127	Teenage Kid Swing 1ft away

NOISE MONITORING FIELD DATA SHEET

Project:	**Arroyo Community Park Sky Track**	**Date:**	**12/2/2021**
Loc:	**NM2**		
SLM:	**Brüel & Kjær 2250**	**SN:**	**3011688**
Mic:	**Brüel & Kjær 4189**	**SN:**	**3099865**
P/A:	**Brüel & Kjær ZC0032**	**SN:**	**25864**

Octave Band Center Frequency, dB

Start Time	Stop Time	31.5	63	125	250	500	1000	2000	4000	8000	Leq, dBA	Distance from Source, ft	Notes
3:27:00 PM	3:30:00 PM	52.6	52.0	43.6	37.2	44.9	46.9	42.0	36.3	27.0	49.7	93	Kids on Swing and Seat
3:33:00 PM	3:35:00 PM	53.5	53.1	46.6	37.7	44.6	46.8	43.3	35.7	31.2	49.9	93	Adult pushing Kids Seat
3:37:00 PM	3:39:00 PM	55.5	52.4	46.6	41.2	49.3	50.4	44.8	36.4	30.2	53.1	93	2 Adults pushing Kids 2 Swing and Seat
3:39:01 PM	3:43:00 PM	54.4	52.9	48.1	40.3	47.8	48.8	44.5	36.7	29.2	51.8	93	1 Adult pushing Kid Swing
3:44:33 PM	3:45:04 PM	52.6	51.4	45.8	34.6	38.5	43.7	38.4	35.8	26.0	46.3	93	1 Adult pushing Teenage Kid Swing
3:48:15 PM	3:48:45 PM	51.6	49.0	44.7	36.6	39.0	45.0	42.2	35.8	25.6	48.1	93	Adult on Seat
3:49:51 PM	3:50:21 PM	53.5	51.5	56.6	43.4	44.4	44.6	41.8	33.6	25.6	49.2	93	Adult on Swing
3:50:28 PM	3:50:56 PM	51.7	52.3	63.6	54.5	53.4	48.3	41.7	31.7	22.8	54.0	93	Teenage Kid on Seat
3:51:21 PM	3:51:51 PM	52.3	52.0	46.8	41.8	48.3	45.1	41.0	34.0	30.1	49.6	93	Teenage Kid on Swing
3:55:48 PM	3:56:18 PM	58.5	52.1	44.3	36.6	42.8	42.6	38.9	31.1	22.2	46.1	93	Teenage Kid Seat 1ft away
3:56:38 PM	3:56:58 PM	51.5	48.4	44.5	41.6	50.0	46.2	41.3	31.1	22.9	50.4	93	Teenage Kid Seat 1ft away from Track
3:57:12 PM	3:57:34 PM	53.0	47.5	42.9	35.1	42.4	42.8	37.7	30.1	19.9	45.7	93	Teenage Kid Swing 1ft away
3:57:42 PM	3:58:26 PM	55.3	47.8	42.6	36.3	43.1	41.5	37.9	28.9	21.4	45.3	93	Teenage Kid Swing 1ft away
3:58:57 PM	3:59:07 PM	50.3	48.6	43.0	42.4	49.2	46.6	41.3	33.6	23.1	50.3	93	Teenage Kid Swing 1ft away from Track
3:59:28 PM	3:59:57 PM	52.2	49.3	45.5	37.9	46.8	45.0	40.9	31.3	22.2	48.7	93	Teenage Kid Swing 1ft away

NOISE MONITORING FIELD DATA SHEET

Project:	**Arroyo Community Park Sky Track**	**Date:**	**12/2/2021**
Loc:	**NM3**		
SLM:	**Brüel & Kjær 2250**	**SN:**	**3011736**
Mic:	**Brüel & Kjær 4189**	**SN:**	**3099878**
P/A:	**Brüel & Kjær ZC0032**	**SN:**	**26056**

Octave Band Center Frequency, dB

Start Time	Stop Time	31.5	63	125	250	500	1000	2000	4000	8000	Leq, dBA	Distance from Source, ft	Notes
3:27:00 PM	3:30:00 PM	53.1	50.9	46.2	44.5	50.1	53.7	50.6	41.4	29.1	56.5	55	Kids on Swing and Seat
3:33:00 PM	3:35:00 PM	53.8	51.9	47.2	43.5	49.2	52.2	49.8	39.3	28.9	55.4	55	Adult pushing Kids Seat
3:37:00 PM	3:39:00 PM	55.5	52.3	48.9	46.7	53.8	56.6	55.2	43.3	31.0	60.2	55	2 Adults pushing Kids 2 Swing and Seat
3:39:01 PM	3:43:00 PM	53.9	52.5	48.3	44.2	50.8	53.4	49.9	38.2	26.6	56.2	55	1 Adult pushing Kid Swing
3:44:33 PM	3:45:04 PM	51.9	50.6	44.8	39.1	44.8	50.6	46.6	44.1	27.9	53.5	55	1 Adult pushing Teenage Kid Swing
3:48:15 PM	3:48:45 PM	54.9	50.9	46.7	43.0	50.4	57.1	57.8	52.3	40.8	62.1	55	Adult on Seat
3:49:51 PM	3:50:21 PM	53.4	50.5	54.5	46.5	48.4	51.3	51.3	39.5	29.2	55.7	55	Adult on Swing
3:50:28 PM	3:50:56 PM	52.6	51.3	65.3	57.2	55.5	57.4	56.3	40.8	34.0	61.5	55	Teenage Kid on Seat
3:51:21 PM	3:51:51 PM	52.5	51.9	48.9	47.0	54.1	52.7	48.6	38.0	30.2	56.0	55	Teenage Kid on Swing

NOISE MONITORING FIELD DATA SHEET

Project:	**Arroyo Community Park Sky Track**	**Date:**	**12/2/2021**
Loc:	**Nearfield**		
SLM:	**Brüel & Kjær 2250**	**SN:**	**3011736**
Mic:	**Brüel & Kjær 4189**	**SN:**	**3099878**
P/A:	**Brüel & Kjær ZC0032**	**SN:**	**26056**

Octave Band Center Frequency, dB

Start Time	Stop Time	31.5	63	125	250	500	1000	2000	4000	8000	Leq, dBA	Distance from Source, ft	Notes
3:55:48 PM	3:56:18 PM	67.0	62.4	67.4	69.9	73.9	66.0	61.4	55.2	54.0	72.6	1	Teenage Kid Seat 1ft away
3:56:38 PM	3:56:58 PM	69.6	66.1	70.6	75.4	82.6	75.6	69.7	63.4	57.7	81.4	1	Teenage Kid Seat 1ft away from Track
3:57:12 PM	3:57:34 PM	63.9	59.0	59.3	67.3	70.7	61.7	55.5	50.0	46.1	69.0	1	Teenage Kid Swing 1ft away
3:57:42 PM	3:58:26 PM	63.6	60.3	62.3	69.0	74.0	65.0	60.5	53.5	47.2	72.3	1	Teenage Kid Swing 1ft away
3:58:57 PM	3:59:07 PM	65.5	63.0	65.0	74.9	82.6	74.9	67.5	62.1	55.8	81.1	1	Teenage Kid Swing 1ft away from Track
3:59:28 PM	3:59:57 PM	61.9	60.6	66.1	69.9	76.1	68.2	65.9	60.2	57.8	75.1	1	Teenage Kid Swing 1ft away

CITY OF DAVIS NOISE ORDINANCE

Chapter 24 NOISE REGULATIONS

Article 24.01 GENERAL PROVISIONS

24.01.010 Declaration of policy.

It is declared to be the policy of the city, in the exercise of its police power, to prohibit unnecessary, excessive and annoying sound levels from all sources. In accordance with this policy, Davis is designated a quiet city. At certain levels, sounds are detrimental to the health and welfare of the citizenry and, in the public interest, shall be systematically proscribed. It is the purpose of this chapter to prescribe standards for and to provide an effective and readily available remedy for violations of this chapter. The provisions of this chapter and the remedies contained herein shall be cumulative and are not intended to replace any otherwise available remedies for public, private or mixed nuisance, nor any other civil or criminal remedies otherwise available. (Ord. 1700 § 1; Ord. 1955, 1998; Ord. 2221, 2005)

24.01.020 Definitions.

As used in this chapter, unless the context otherwise clearly indicates, the words and phrases used in this chapter are defined as follows:

City manager means the city manager for the City of Davis, California, or his or her representative or designee.

Director of public works means public works director for the City of Davis, California, or his or her representative or designee.

Emergency means efforts necessary to preserve or restore property to a safe condition following a public calamity, or to protect persons or property from an imminent exposure to danger, or work by private or public utilities when restoring utility services.

Holiday means any day established as such by federal, state or local government.

Landscape maintenance equipment means any equipment or device used, designed or operated to maintain landscaped areas, including edger's, hedgers, lawn mowers, powered blowers, weed eaters/string trimmers, chain saws for landscape and tree maintenance, and similar devices.

Noise means unwanted sound.

Noise level means the maximum continuous sound level or repetitive peak level produced by a sound source or group of sources as measured with a Type S2A or better sound level meter using the "A" switch weighing scale and the meter response function set to "SLOW."

Person means a person, firm, association, co-partnership, joint venture, corporation, or entity, public or private in nature, including any city, county, district or other public agency.

Police chief means the chief of police for the City of Davis, California, or his or her representative or designee.

Powered blower means any equipment or device used, designed or operated to vacuum or produce a current of air to push, propel or blow cuttings leaves, refuse, or debris.

Power tools means any motorized piece of equipment or device, such as air gun, air compressor, chain saw, chipper, circular saw, drill, stump grinder, or similar.

Precision sound meter means a device for measuring sound level in decibel units within the performance specifications in the American National Standards Institute Standards S1.4, Specification of Sound Level

Meters.

Property plane means a vertical plane including the property line which determines the property boundaries in space. When the term "property line" is used in this chapter, it refers to the property plane. For implementation of noise regulations, the property plane used for conducting noise measures is the property plane of the noise source.

School means the Davis Joint Unified School District and any other public or private school licensed as a school by the State of California.

Sound amplifying equipment means any machine or device for the acoustical or electronic amplification of the human voice, music or any other sound, or by which the human voice, music or any other sound is amplified. Sound amplifying equipment, as used in this chapter, shall not include vehicle radios, CDs and/or tape players when used and heard only by the occupants of the vehicles in which the vehicle radio, CD, and/or tape players installed. Sound amplifying equipment, as used in this chapter, shall not include warning devices on authorized emergency vehicles or horns or other warning devices on any vehicle used for traffic safety purposes.

Sound level expressed in decibels (dB), means a logarithmic indication of the ratio between the acoustic energy present at a given location and the lowest amount of acoustic energy audible to sensitive human ears and weighted by frequency to account for characteristics of human hearing, as given in the American National Standards Institute Standard S1.1, Acoustic Terminology, Paragraph 2.9, or successor references. All references to dB in this chapter utilize the A-level weighing scale, abbreviated dBA, measured as set forth in this section.

Sound truck means any motor vehicle, or any other vehicle regardless of motor power, whether in motion or stationary, having mounted thereon, or attached thereto, any sound amplifying equipment with the intent to amplify sound outside the vehicle.

Type S2A or better sound level meter means a device for measuring sound level in decibel units within the performance specifications in the American National Standards Institute S1.4, Specification for Sound Level Meters. (Ord. 1700 § 1; Ord. 1854 § 1; Ord. 1955, 1998; Ord. 2221, 2005)

24.01.030 Violations—Infractions—Miscellaneous.

(a) Any person violating or permitting violation of any of the provisions of this chapter is guilty of an infraction for each of the first two violations within a period of one year, and upon conviction thereof, shall be punished by a fine not to exceed the fine prescribed in accordance with the provisions of Section 36900 (b) of the California Government Code, or successor legislation. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. Any repetition or continuation of any violation, reasonably capable of immediate correction after receipt of written or verbal notice shall constitute a separate offense and shall be punished as such.

(b) Any person violating or permitting violation of any of the provisions of this chapter for the third time within a one-year period is guilty of an misdemeanor, and shall be punished by a fine or, by imprisonment in the county jail, or by both such fine and imprisonment not to exceed the maximum fine and/or imprisonment established in Section 36901 of the California Government Code, or successor legislation.

(c) Upon the third confirmed violation of this chapter within a twenty-four hour period of time beginning on the first notice of violation issued, the police department may take action as necessary to abate the noise violation, including, but not limited to, instructing the host to "close the party," physically arresting the host or taking the amplifying equipment as evidence. (Ord. 1700 § 1; Ord. 1854 § 2; Ord. 1955, 1998; Ord. 2221, 2005)

24.01.040 Violations—Additional remedies—Injunctions.

As an additional remedy, the violation of any provision of this chapter shall be deemed and is declared to a be a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction. (Ord. 1700 § 1; Ord. 1854 § 3; Ord. 1955, 1998; Ord. 2221, 2005)

Article 24.02 GENERAL RESTRICTIONS

24.02.010 Animals and fowl.

(a) No person shall keep or maintain in any residential neighborhood, or permit the keeping of, upon any premises owned, occupied or controlled by such person, any animal or fowl otherwise permitted to be kept which, by any sound, cry or behavior shall cause annoyance or discomfort. The vocalization of a dog, or comparable sounds by other animals or fowl, for more than three out of five minutes, on a sustained basis during a ten minute measurement period, in excess of the allowable decibel limit, between the hours of 9:00 p.m. and 7:00 a.m. the following day, or for more than five out of ten minutes, on a sustained basis during a fifteen minute measurement period, in excess of the allowable decibel limit, between the hours of 7:00 a.m. and 9:00 p.m., or for fifteen minutes of sustained vocalizations, which sounds are audible within the property plane on property other than that owned, occupied, or controlled by such person, or inside any dwelling unit on the same property, but not owned, occupied or controlled by such person, shall constitute a prima facie violation of the provisions of this section.

(b) If the owner, or person in custody of the animal or fowl that violates this section is not available, the written notice of violation and/or the citation may be given to someone else at the residence, or posted in a conspicuous location on the premises. (Ord. 1700 § 1; Ord. 1854 § 4; Ord. 1955, 1998; Ord. 2221, 2005)

24.02.020 Noise limits.

(a) No person shall produce, suffer or allow to be produced on any public or private property, sounds at a level in excess of those enumerated in Table 1, when measured at its property plane or, if on any street or highway measured at the property plane of the nearest property.

(b) No person shall produce, suffer or allow to be produced on any multifamily residential property, sounds at a level in excess of those enumerated in Table 1, when measured inside any dwelling unit on the same property or twenty feet from the outside of the dwelling unit in which the noise source or sources may be located.

(c) Notwithstanding any other provision of this section, no person shall produce, suffer or allow to be produced any sound on any private or public property, which is audible to a person within any dwelling unit of a residential planned development or residentially zoned property, except within any dwelling unit which the sound source or sources are located to which is occupied or controlled by the person controlling such source; unless the permission, either written or verbal, of the occupants of all affected dwelling units has been obtained.

During the hours of 9:00 a.m. through 10:00 p.m., Sunday through Thursday, and 9:00 a.m. and 12:30 a.m. the following day, Friday and Saturday, such permission shall be presumed to be granted by occupants of all affected dwelling units; provided that any affected person may withdraw such consent at any time. Such withdrawal of consent may be accomplished by either verbal or written request to the person causing, or allowing, such sound to be made, or by making such request to the city police department who shall then notify the person causing, or allowing, such sound to be made.

The provisions of this subsection shall not apply to any sound generated upon a common use portion of any multiple-family dwelling between the hours of 9:00 a.m. through 10:00 p.m., Sunday through Thursday, and 9:00 a.m. through 12:30 a.m. the following day, Friday and Saturday, except to the extent that such sound is audible within any dwelling unit not located upon the same property.

Table No. 1

Land Use	Time Period	Maximum Noise Level (dBA)
Residential	9 p.m.—7 a.m.	50
	7 a.m.—9 p.m.	55
Commercial/industrial/core commercial	10 p.m.—7 a.m.	55
	7 a.m.—10 p.m.	60
High noise traffic corridor	Anytime	65

Determination of which land use and time period applies to a noise source, shall be based upon the affected (complainant's) property's land use. Decibel levels shall be measured at the affected (complainant's) property plane at the point closest to the noise source.

The high noise traffic corridors include the following: Highway 113 and Interstate 80.

The land uses as shown in the above table are defined using the city general plan and Table No. 2, as shown below:

Table No. 2

Noise Zone	Definition (using general plan terms where applicable)
Residential	Any parcel with a single-family or multifamily dwelling, including living groups, excluding those in the core commercial area as defined below
Commercial/industrial	All nonresidential properties (retail shopping, office, highway/service commercial, light industrial/business park, industrial, public/semipublic, commercial/ agricultural buffer, commercial recreation, agriculture, urban reserve)
Core commercial	All property types in the core commercial area beginning at southwest corner of 5th Street and the railroad tracks; railroad tracks south to D Street, north on D Street, east on 4th Street, north on F Street, east on 5th Street to railroad tracks
High noise traffic corridor	Properties bordering designated "high noise" corridors to be designated by resolution of city council. "Bordering" will be defined as falling wholly or partially within one hundred feet of designated "high noise" corridor (e.g., Highway 113)

(Ord. 1700 § 1; Ord. 1854 § 5; Ord. 1955, 1998; Ord. 2017, 2000; Ord. 2221, 2005)

24.02.030 Maximum noise limit.

No person shall produce, suffer or allow to be produced in any location a noise level of more than twenty dBA

above the limit, but not greater than eighty dBA, on Table No. 1 measured at the property plane. This section constitutes an absolute noise limitation applicable notwithstanding any other provision of this chapter, or any exception, exemption or waiver provided therefrom, except that the provisions of this section shall not apply to those activities referred to in Section 24.02.040(a) through (d) or to emergencies. (Ord. 1700 § 1; Ord. 1854 § 6; Ord. 1955, 1998; Ord. 2221, 2005)

24.02.040 Special provisions.

(a) Power tools. The operation of power tools for noncommercial purposes shall be exempt from the provisions of Sections 24.02.020(a), (b), (c) and 24.02.030, between the hours of 8:00 a.m. and 8:00 p.m.; provided, that such operations shall be subject to the provisions of Section 24.05.010. For purposes of this section, a noncommercial use shall be a use for which a business license is not required pursuant to Chapter 19.

(b) Construction and landscape maintenance equipment. Notwithstanding any other provision of this chapter, between the hours of 7:00 a.m. and 7:00 p.m. on Mondays through Fridays, and between the hours of 8:00 a.m. and 8:00 p.m. on Saturdays and Sundays, construction, alteration, repair or maintenance activities which are authorized by valid city permit or business license, or carried out by employees of contractors of the city shall be allowed if they meet at least one of the following noise limitations:

(1) No individual piece of equipment shall produce a noise level exceeding eighty-three dBA at a distance of twenty-five feet. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to twenty feet from the equipment as possible.

(2) The noise level at any point outside of the property plane of the project shall not exceed eighty-six dBA.

(3) The provisions of subdivisions (1) and (2) of this subsection shall not be applicable to impact tools and equipment; provided, that such impact tools and equipment shall have intake and exhaust mufflers recommended by manufacturers thereof and approved by the director of public works as best accomplishing maximum noise attenuation, and that pavement breakers and jackhammers shall also be equipped with acoustically attenuating shields or shrouds recommended by the manufacturers thereof and approved by the director of public works as best accomplishing maximum noise attenuation. In the absence of manufacturer's recommendations, the director of public works may prescribe such means of accomplishing maximum noise attenuation as he or she may determine to be in the public interest.

Construction projects located more than two hundred feet from existing homes may request a special use permit to begin work at 6:00 a.m. on weekdays from June 15th until September 1st. No percussion type tools (such as ramsets or jackhammers) can be used before 7:00 a.m. The permit shall be revoked if any noise complaint is received by the police department.

(4) No individual powered blower shall produce a noise level exceeding seventy dBA measured at a distance of fifty feet.

(5) No powered blower shall be operated within one hundred feet radius of another powered blower simultaneously.

(6) On single-family residential property, the seventy dBA at fifty feet restriction shall not apply if operated for less than ten minutes per occurrence.

(c) **Air conditioners and similar equipment.** Air conditioners, pool pumps and similar equipment are exempt from this chapter, provided they are in good working order.

(d) **Work required for the public health and safety.** Work performed by city, city franchises, persons under contract with the city for repairs or maintenance of roads, water wells, water service lines, trees and landscape, as well as street sweeping, garbage removal, and similar activities are exempt from this chapter.

(e) **Safety devices.** Aural warning devices which are required by law to protect the health, safety and welfare

of the community shall be exempt from the provisions of this chapter.

(f) **Emergencies**. Emergencies are exempt from this chapter. (Ord. 1700 § 1; Ord. 1854 §§ 7—10; Ord. 1955, 1998; Ord. 2017, 2000; Ord. 2037, 2000; Ord. 2221, 2005)

Article 24.03 MOTOR VEHICLES

24.03.010 Vehicle repairs.

It is unlawful for any person within any residentially zoned or residentially planned development zoned area of the city to repair, rebuild or test any motor vehicle in such a manner that exceeds the limits set for residential zones in Table No. 1 measured at the property plane. (Ord. 1700 § 1; Ord. 1854 § 11; Ord. 1955, 1998; Ord. 2221, 2005)

Article 24.04 AMPLIFIED SOUND

24.04.010 Purpose.

The council enacts this legislation for the sole purpose of securing and promoting the public health, comfort, safety and welfare for its citizenry. While recognizing that the use of sound amplifying equipment may be entitled to certain protection by the constitutional rights of freedom of speech and assembly, the city council finds that in order to protect the public safety and the correlative rights of the citizens of this community to privacy and freedom from public nuisance of loud and unnecessary noise, reasonable regulation of the time, place and manner of the use of amplifying equipment is necessary. In no event shall approval or authorization required herein be withheld by reason of the constitutionally protected content of any material proposed to be broadcast through amplifying equipment. (Ord. 1700 § 1 ; Ord. 1854 § 13; Ord. 1955, 1998; Ord. 2221, 2005)

24.04.020 Registration—Required.

It is unlawful for any person, other than personnel of law enforcement or governmental agencies, to install, use or operate within the city a loudspeaker or sound amplifying equipment in a fixed or movable position or mounted upon any sound truck for the purposes of giving instructions, directions, talks, addresses, lectures or transmitting music, to any persons or assemblages of persons in or upon any street, alley, sidewalk, park, place, or other outdoor public property without first filing a registration statement and obtaining approval thereof as set forth in this article. The provisions of this section shall also apply to the use of sound amplifying equipment upon public or private property when used in connection with outdoor or indoor public or private events, whether or not admission is charged or food or beverages are sold, when such activity is to be attended by more than one hundred persons and the noise emanating from the event will be audible at the property plane, or in the case of a street dance or concert on the nearest residential property. Outdoor sponsored athletic events and graduations held on school property and indoor events held in any assembly hall, school building, or other private or public building with an occupancy rate of more than one hundred people are exempt from the requirements of this section. (Ord. 1700 § 1; Ord. 1955, 1998; Ord. 2221, 2005)

24.04.030 Registration—Optional.

Any person desiring to utilize sound amplifying equipment, and not otherwise required to file a registration statement pursuant to Section 24.04.040, may make such application and shall be subject to the provisions of this article. (Ord. 1700 § 1; Ord. 1955, 1998; Ord. 2221, 2005)

24.04.040 Registration—Application and issuance.

(a) **Issuing authority.** The issuing authority shall be the police chief.

(b) **Approving authority.** The approving authority shall be the police chief.

(c) **Application**. Every user of sound amplifying equipment subject to the provisions of this article shall file a registration statement with the police chief at least sixteen days and no more than one hundred twenty days prior to the date on which the sound amplifying equipment is intended to be used. Applications for events covered by the first amendment of the United States Constitution are exempt from the time requirements of this section if it can shown that circumstances required a shorter filing period and that the event will not constitute an unsafe condition. The statement shall contain the following information:

(1) The name, address and telephone number of both the owner and the user of the sound amplifying equipment;

(2) The license number, if a sound truck is to be used;

(3) A general description of the sound amplifying equipment which is to be used;

(4) Whether sound amplifying equipment will be used for commercial or noncommercial purpose;

(5) The dates and times upon and within which and the streets or property over or upon which the equipment is proposed to be operated;

(6) The name or names of one or more persons who will be present during the conduct of any activities for which registration is sought and who will have authority to reduce the volume of any sound amplifying equipment during the course of the activities if required pursuant to this chapter and, otherwise, to insure compliance with the provisions of this chapter;

(7) A statement by the applicant that he or she is willing and able to comply with the provisions of this chapter and the conditions of the registration statement;

(8) A sketch of the area or facilities within which the activities are to be conducted, with approximate dimensions and illustration of the location and orientation of all sound amplifying equipment.

(d) **Processing application**. The police chief shall approve the registration statement and return it to the applicant unless the chief finds:

(1) The conditions of any motor vehicle movement are such that, in his or her opinion, the use of the equipment would constitute an unreasonable interference with traffic safety; or

(2) The conditions of pedestrian movement are such that the use of the equipment would constitute a detriment to traffic safety; or

(3) The registration statement submitted by the applicant reveals that the applicant would violate the provisions of this article; or

(4) The applicant is unwilling or unable to comply with the provisions of this chapter or any conditions imposed upon any registration statement issued; or

(5) There had already been a permitted event at the intended location, or within a two hundred−yard radius of the intended location and the prior permitted event was located on residentially zoned property or on a street, alley, public parking lot or neighborhood park within three months prior to the intended event. Community parks are exempt from this subsection (5); or

(6) The applicant or location has had previous violations within the past calendar year, and in the judgment of the police chief, issuance would be contrary to the intent of Section 24.04.010.

(e) **Determination**. In determining whether the use of the equipment would constitute an unreasonable interference with or detriment to traffic safety, the police chief shall consider, but shall not necessarily be limited to:

(1) The volumes, patterns and speed of vehicular and pedestrian traffic in the proposed are of use;

(2) The relationship of the proposed use of equipment and potential impacts upon traffic patterns;

(3) Availability of sufficient room for the operation of the equipment without significantly interfering with the traffic patterns;

(4) Proximity to schools, playgrounds and similar facilities where use of such equipment might attract children into traffic patterns;

(5) Proximity to busy intersections or other potentially hazardous conditions where use of such equipment might constitute a hazard by reason of its tendency to distract drivers of vehicles or pedestrians.

(f) **Issuance or denial.**

(1) If the registration statement is approved, the police chief shall return an approved copy of the registration statement to the applicant which shall constitute permission for the use of the sound amplifying equipment as requested.

(2) If the registration statement is disapproved, the police chief shall return a disapproved copy forthwith to the applicant with a written statement on the reason for disapproval.

(3) Any registration statement filed shall be either approved or disapproved within five days of the filing thereof. (Ord. 1700 § 1; Ord. 1854 §§ 14—16; Ord. 1955, 1998; Ord. 2221, 2005)

24.04.050 Appeals.

(a) Any person affected or aggrieved by approval or disapproval of a registration statement may appeal by filing a written notice with the city clerk within five days of notification of approval or disapproval of the application, or within five days of notification of approval to neighbors as provided in Section 24.04.070(c)(2), whichever is later. It is assumed that persons residing within two hundred yards of the event will be affected.

(b) The appeal shall be heard by the city manager not later than seven calendar days after the date of filing an appeal.

(c) The city manager's determination of the appeal shall be based solely on the grounds set forth in Section 24.04.040(d). The city manager shall make his or her determination to uphold or deny the appeal within three business days of the date of the hearing on the appeal. The decision of the city manager shall be final.

(d) No registration statement approved shall be valid while an appeal is pending.

(e) The time periods set forth in this section may be extended by mutual consent of the city and the applicant. (Ord. 1700 § 1 ; Ord. 1854 § 17; Ord. 1955, 1998; Ord. 2221, 2005)

24.04.060 Fees and expiration.

Prior to the application for issuance of a registration statement, a fee consistent with the city's master fee schedule shall be paid to the city. The dates and times for which activity is authorized shall be shown on the face of the registration statement. In the event use is authorized during certain periods of time, without specification of fixed time, the time limits within which the registration statement is effective shall be shown on the face of the registration statement, as well as the expiration date. Registration statements may be renewed in the same manner as initial application are made. (Ord. 1700 § 1; Ord. 1854 § 18; Ord. 1955, 1998; Ord. 2221, 2005)

24.04.070 Regulations—Registration statements.

(a) Upon approval of a registration statement pursuant to Section 24.04.040, any activity conducted on public or private property pursuant to such registration statement and in connection with an outdoor or indoor public or private concert, dance, party, or any similar event, shall be exempt from the provisions of Section 24.02.020, but shall remain subject to the provisions of Section 24.02.030 and, furthermore, shall be subject to the standards set forth in subsection (c) of this section.

(b) Upon approval of a registration statement for any activity conducted within a dwelling unit located

within a multiple-family structure, including condominiums, such activity shall be exempt from the provisions of Section 24.02.020(c), but shall remain subject to all other provisions of this chapter including the provisions of subsection (c) of this section.

(c) Any activity for which a registration statement is approved pursuant to this article shall be subject to the following conditions:

(1) The exemptions provided in subsections (a) and (b) of this section shall remain in effect until 12:00 midnight in residential zones and 12:30 a.m. in other zones, on Saturday, and Sunday mornings and any night preceding a holiday, or until ten p.m. on any other night. After that time the exemptions shall expire and any and all activities conducted shall be subject to all otherwise applicable provisions of this chapter.

(2) The applicant shall provide written notice of the event to the residents within two hundred yards of the property plane of the property on which the activity is to be held and in multiple dwellings, to all residences located on the same parcel at least fourteen days prior to the date of the event. The notice shall include the date of distribution of the notification, the name of the permit holder, the address and the telephone number of the host property, the date and hours during which the event is permitted to take place, and the statement "approval of the permit for this proposed event may be appealed to the Davis police department within five days of the receipt of this notice."

(3) Speakers for sound amplification equipment shall be directed, to the extent feasible, toward open or unoccupied space and away from residentially occupied property.

(4) Approval of a registration statement may be conditioned upon such other terms as may be necessary to insure compliance with the provisions of this chapter.

(d) Sound amplifying equipment shall not be utilized for more than four total hours within any twenty-four-hour period.

(e) The only sounds permitted on the sound amplification system shall be either music or human speech, or both. (Ord. 1700 § 1; Ord. 1854 §§ 19—21; Ord. 1955, 1998; Ord. 2221, 2005)

Article 24.05 GENERAL NOISE REGULATIONS

24.05.010 General prohibition.

(a) Notwithstanding any other provisions of this chapter, and in addition thereto, it is unlawful for any person to willfully make or continue, or cause to be made or continued, any noise which unreasonably disturbs the peace and quiet of any neighborhood.

(b) For purposes of this article a complaint of unreasonable noise is deemed a prima facie violation if there is one complaint, and independent corroboration by a police department employee of the unreasonable nature of the noise, based on the criteria in subsection (c) of this section, or three distinct complaints from two affected premises affected by the same sound source, with the exception of events covered under Section 24.04.070(a).

(c) The factors below shall be considered when determining whether a violation of the provisions of this section exists shall include, but shall not be limited to the following:

(1) Loudness (intensity) of the sound;

(2) Pitch (frequency) of the sound, e.g. very low bass or high screech;

(3) Duration of the sound;

(4) Time of day;

(5) Necessity of noise, e.g., garbage collecting;

(6) Background noise. (Ord. 1700 § 1 ; Ord. 1854 § 22; Ord. 1858 § 1; Ord. 1955, 1998; Ord. 2221, 2005)

Article 24.06 VARIANCES AND EXCEPTIONS

24.06.010 Exception permits.

If the applicant can show to the city manager that a diligent investigation of available noise abatement techniques indicates that immediate compliance with the requirements of this chapter would be technologically impractical or unreasonable, a permit to allow exceptions from the provisions contained in all or a portion of this chapter may be issued, with appropriate conditions to minimize the public detriment caused by such exceptions. Any such permit shall be as short duration as possible, and shall be conditioned by a schedule for compliance and details of methods therefore in appropriate cases. Any person aggrieved with the decision of the city manager may appeal to the city council by filing a written notice of appeal with the city clerk within ten days of the decision of the city manager. (Ord. 1700 § 1; Ord. 1854 § 23; Ord. 1955, 1998; Ord. 2221, 2005)

Article 24.07 REGULATIONS NOT EXCLUSIVE

24.07.010 Interrelationship of provisions.

It is the purpose of this chapter to provide maximum noise level limitations for otherwise lawful activities. Nothing contained in this chapter shall be deemed to authorize any otherwise prohibited activity nor to supersede otherwise existing noise limitations. In the event of a conflict between the standards contained in this chapter and any other provisions of law, the more restrictive shall govern. (Ord. 1700 § 1; Ord. 1955, 1998; Ord. 2221, 2005)

MODELING INPUT & OUTPUT

CadnaA Input and Output Files

Exisiting SkyTrack

Receivers

Name	M.	ID	Level Lr Ld (dBA)	Limit. Valu Ld (dBA)	Land Use Type	Auto	Height Noise Type	(m)		Coordinates X (m)	Y (m)	Z (m)
NM1			57.2	0	x		Total	1.5	r	491.45	226.84	1.5
NM2			55.5	0	x		Total	1.5	r	527.8	226.05	1.5
NM3			66.3	0	x		Total	1.5	r	474.59	263.58	1.5

Line Source

Name	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Result. PWL' Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	norm. dB(A)	Correction Day dB(A)	Evening dB(A)	Night dB(A)	Sound Reduction R	Area (m²)	Attenuatio	Operating Time Day (min)	Special (min)	Night (min)	K0 (dB)	Freq. (Hz)	Direct.	Moving Pt. Src Number Day	Evening	Night	Speed (km/h)	
			0	0	0	0	0	0	Lw'			0	0	0								0	500	(none)				
Seat			100.6	-17.3	-17.3	88.5	-29.5	-29.5	PWL-Pt	S		0	0	0								0		(none)	62	0	0	1
Swing			96.4	-21.5	-21.5	84.3	-33.6	-33.6	PWL-Pt	Sw		0	0	0								0		(none)	62	0	0	1

Result Table

Receiver Name	ID	Land Use	Limiting Value Day dB(A)	Night dB(A)	rel. Axis Station m	Distance m	Height m	Lr w/o Noise Control Day dB(A)	Night dB(A)	dL req. Day dB(A)	Night dB(A)	Lr w/ Noise Control Day dB(A)	Night dB(A)	Exceeding Day dB(A)	Night dB(A)	passive NC dB(A)
NM1			0	0	0	28.34	1.5	58.8	0	58.8	-	0	0	-	-	-
NM2			0	0	0	46.44	1.5	55.5	0	55.5	-	0	0	-	-	-
NM3			0	0	1	16.72	1.5	66.3	0	66.3	-	0	0	-	-	-

Sound Levels

Name	ID	Type	Oktave Spectrum (dB) Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	Source
Teenage Kid Seat	S	Lw		94.6	90	95	97.5	101.5	93.6	89	82.8	81.6	100.5	104.8	
Teenage Kid Swing	Sw	Lw		80.7	78.2	80.2	90.1	97.8	90.1	82.7	77.3	71	96.4	99.4	

Location A

Name	M.	ID	Level Lr Ld (dBA)	Limit. Valu Ld (dBA)	Land Use Type	Auto	Height Noise Type	(m)		Coordinates X (m)	Y (m)	Z (m)
NM1			36.9	0	x		Total	1.5	r	491.45	226.84	1.5
NM2			35.9	0	x		Total	1.5	r	527.8	226.05	1.5
NM3			37.6	0	x		Total	1.5	r	474.59	263.58	1.5
R North			49.5	0	x		Total	1.5	r	163.53	412.57	1.5
R South			49.3	0	x		Total	1.5	r	160.03	226.99	1.5
R Pool			41.4	0	x		Total	1.5	r	376.41	326.07	1.5
R East			34.2	0	x		Total	1.5	r	604.43	373.37	1.5
R West			57.7	0	x		Total	1.5	r	120.8	316.4	1.5

Sources

Name	M.	ID	Result. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Result. PWL' Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	norm. dB(A)	Correction Day dB(A)	Evening dB(A)	Night dB(A)	Sound Reduction R	Area (m²)	Attenuatio	Operating Time Day (min)	Special (min)	Night (min)	K0 (dB)	Freq. (Hz)	Direct.	Moving Pt. Src Number Day	Evening	Night	Speed (km/h)	
			0	0	0	0	0	0	Lw'			0	0	0								0	500	(none)				
Seat			100.2	-17.7	-17.7	88.5	-29.5	-29.5	PWL-Pt	S2		0	0	0								0		(none)	62	0	0	1
Swing			96.1	-21.8	-21.8	84.3	-33.6	-33.6	PWL-Pt	Sw2		0	0	0								0		(none)	62	0	0	1

Result Table

Receiver Name	ID	Land Use	Limiting Value Day dB(A)	Night dB(A)	rel. Axis Station m	Distance m	Height m	Lr w/o Noise Control Day dB(A)	Night dB(A)	dL req. Day dB(A)	Night dB(A)	Lr w/ Noise Control Day dB(A)	Night dB(A)	Exceeding Day dB(A)	Night dB(A)	passive NC dB(A)
NM1			0	0	0	341.78	1.5	36.9	0	36.9	-	0	0	-	-	-
NM2			0	0	0	377.23	1.5	35.9	0	35.9	-	0	0	-	-	-
NM3			0	0	0	317.7	1.5	37.6	0	37.6	-	0	0	-	-	-
R North			0	0	15	84.14	1.5	49.5	0	49.5	-	0	0	-	-	-
R South			0	0	0	86.35	1.5	49.3	0	49.3	-	0	0	-	-	-
R Pool			0	0	13	215.58	1.5	41.4	0	41.4	-	0	0	-	-	-
R East			0	0	15	445.87	1.5	34.2	0	34.2	-	0	0	-	-	-
R West			0	0	3	38.96	1.5	57.7	0	57.7	-	0	0	-	-	-

Sound Levels

Name	ID	Type	Oktave Spectrum (dB) Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	Source
Teenage Kid Seat	S	Lw		94.6	90	95	97.5	101.5	93.6	89	82.8	81.6	100.5	104.8	
Teenage Kid Swing	Sw	Lw		80.7	78.2	80.2	90.1	97.8	90.1	82.7	77.3	71	96.4	99.4	

Location B

Receivers

Name	M.	ID	Level Lr	Limit. Valu	Land Use		Height		Coordinates		
			Ld	Ld	Type	Auto	Noise Type		X	Y	Z
			(dBA)	(dBA)				(m)	(m)	(m)	(m)
NM1			49.2	0		x	Total	1.5 r	491.45	226.84	1.5
NM2			47.7	0		x	Total	1.5 r	527.8	226.05	1.5
NM3			54.3	0		x	Total	1.5 r	474.59	263.58	1.5
R North			49.1	0		x	Total	1.5 r	469.24	414.93	1.5
R South			49.5	0		x	Total	1.5 r	468.34	226.94	1.5
R Pool			61.4	0		x	Total	1.5 r	439.19	316.62	1.5
R East			44.6	0		x	Total	1.5 r	618.24	347.42	1.5

Sources

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction		Attenuatio	Operating Time			K0	Freq.	Direct.	Moving Pt. Src			
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night				Number			Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(km/h)
			0	0	0	0	0	0	Lw'			0	0	0							0	500	(none)				
Seat			100.2	-17.7	-17.7	88.5	-29.5	-29.5	PWL-Pt	S2		0	0	0							0		(none)	62	0	0	1
Swing			96.1	-21.8	-21.8	84.3	-33.6	-33.6	PWL-Pt	Sw2		0	0	0							0		(none)	62	0	0	1

Result Table

Receiver		Land Use	Limiting Value		rel. Axis			Lr w/o Noise Control		dL req.		Lr w/ Noise Control		Exceeding		passive NC
Name	ID		Day	Night	Station	Distance	Height	Day	Night	Day	Night	Day	Night	Day	Night	
			dB(A)	dB(A)	m	m	m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
NM1			0	0	0	87.79	1.5	49.2	0	49.2	-	0	0	-	-	-
NM2			0	0	0	104.3	1.5	47.7	0	47.7	-	0	0	-	-	-
NM3			0	0	0	48.28	1.5	54.3	0	54.3	-	0	0	-	-	-
R North			0	0	15	88.52	1.5	49.1	0	49.1	-	0	0	-	-	-
R South			0	0	0	84.44	1.5	49.5	0	49.5	-	0	0	-	-	-
R Pool			0	0	5	26.95	1.5	61.4	0	61.4	-	0	0	-	-	-
R East			0	0	15	151.86	1.5	44.6	0	44.6	-	0	0	-	-	-

Sound Levels

Name	ID	Type	Oktave Spectrum (dB)										Source	
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin
Teenage Kid Seat	S	Lw		94.6	90	95	97.5	101.5	93.6	89	82.8	81.6	100.5	104.8
Teenage Kid Swing	Sw	Lw		80.7	78.2	80.2	90.1	97.8	90.1	82.7	77.3	71	96.4	99.4

Location C

Receivers

Name	M.	ID	Level Lr	Limit. Valu	Land Use		Height		Coordinates		
			Ld	Ld	Type	Auto	Noise Type		X	Y	Z
			(dBA)	(dBA)				(m)	(m)	(m)	(m)
NM1			48.8	0		x	Total	1.5 r	491.45	226.84	1.5
NM2			48.3	0		x	Total	1.5 r	527.8	226.05	1.5
NM3			52.6	0		x	Total	1.5 r	474.59	263.58	1.5
R North			49.5	0		x	Total	1.5 r	489.7	418.15	1.5
R South			48.7	0		x	Total	1.5 r	509.03	226.39	1.5
R Pool			53.4	0		x	Total	1.5 r	438.57	312.52	1.5
R East			47.3	0		x	Total	1.5 r	604.43	373.37	1.5
R West			36.0	0		x	Total	1.5 r	122.35	318.7	1.5

Sources

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction		Attenuatio	Operating Time			K0	Freq.	Direct.	Moving Pt. Src			
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night				Number			Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(km/h)
			0	0	0	0	0	0	Lw'			0	0	0							0	500	(none)				
Seat			100.2	-17.7	-17.7	88.5	-29.5	-29.5	PWL-Pt	S2		0	0	0							0		(none)	62	0	0	1
Swing			96.1	-21.8	-21.8	84.3	-33.6	-33.6	PWL-Pt	Sw2		0	0	0							0		(none)	62	0	0	1

Result Table

Receiver		Land Use	Limiting Value		rel. Axis			Lr w/o Noise Control		dL req.		Lr w/ Noise Control		Exceeding		passive NC
Name	ID		Day	Night	Station	Distance	Height	Day	Night	Day	Night	Day	Night	Day	Night	
			dB(A)	dB(A)	m	m	m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
NM1			0	0	0	94.57	1.5	48.8	0	48.8	-	0	0	-	-	-
NM2			0	0	0	97.73	1.5	48.3	0	48.3	-	0	0	-	-	-
NM3			0	0	0	63.9	1.5	52.6	0	52.6	-	0	0	-	-	-
R North			0	0	15	86.32	1.5	49.5	0	49.5	-	0	0	-	-	-
R South			0	0	0	94.44	1.5	48.7	0	48.7	-	0	0	-	-	-
R Pool			0	0	15	56.73	1.5	53.4	0	53.4	-	0	0	-	-	-
R East			0	0	0	112.56	1.5	47.3	0	47.3	-	0	0	-	-	-
R West			0	0	15	370.11	1.5	36	0	36	-	0	0	-	-	-

Sound Levels

Name	ID	Type	Oktave Spectrum (dB)										Source	
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin
Teenage Kid Seat	S	Lw		94.6	90	95	97.5	101.5	93.6	89	82.8	81.6	100.5	104.8
Teenage Kid Swing	Sw	Lw		80.7	78.2	80.2	90.1	97.8	90.1	82.7	77.3	71	96.4	99.4

Location D

Receiver		Land Use	Limiting Value		rel. Axis			Lr w/o Noise Control		dL req.		Lr w/ Noise Control		Exceeding		passive NC
Name	ID		Day	Night	Station	Distance	Height	Day	Night	Day	Night	Day	Night	Day	Night	
			dB(A)	dB(A)	m	m	m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
NM1			0	0	0	122.3	1.5	46.3	0	46.3	-	0	0	-	-	-
NM2			0	0	0	135.54	1.5	45.4	0	45.4	-	0	0	-	-	-
NM3			0	0	0	83.24	1.5	49.6	0	49.6	-	0	0	-	-	-
R North			0	0	15	54.83	1.5	53.2	0	53.2	-	0	0	-	-	-
R South			0	0	0	119.71	1.5	46.5	0	46.5	-	0	0	-	-	-
R Pool			0	0	0	38.24	1.5	56.5	0	56.5	-	0	0	-	-	-
R East			0	0	15	140.43	1.5	45.4	0	45.4	-	0	0	-	-	-

Sources

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction	Attenuatio	Operating Time			K0	Freq.	Direct.	Moving Pt. Src			
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area	Day	Special	Night				Number			Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)	(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(km/h)
			0	0	0	0	0	0	Lw'			0	0	0						0	500	(none)				
Seat			100.2	-17.7	-17.7	88.5	-29.5	-29.5	PWL-Pt	S2		0	0	0						0		(none)	62	0	0	1
Swing			96.1	-21.8	-21.8	84.3	-33.6	-33.6	PWL-Pt	Sw2		0	0	0						0		(none)	62	0	0	1

Result Table

Receiver		Land Use	Limiting Value		rel. Axis			Lr w/o Noise Control		dL req.		Lr w/ Noise Control		Exceeding		passive NC
Name	ID		Day	Night	Station	Distance	Height	Day	Night	Day	Night	Day	Night	Day	Night	
			dB(A)	dB(A)	m	m	m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
NM1			0	0	0	122.3	1.5	46.3	0	46.3	-	0	0	-	-	-
NM2			0	0	0	135.54	1.5	45.4	0	45.4	-	0	0	-	-	-
NM3			0	0	0	83.24	1.5	49.6	0	49.6	-	0	0	-	-	-
R North			0	0	15	54.83	1.5	53.2	0	53.2	-	0	0	-	-	-
R South			0	0	0	119.71	1.5	46.5	0	46.5	-	0	0	-	-	-
R Pool			0	0	0	38.24	1.5	56.5	0	56.5	-	0	0	-	-	-
R East			0	0	15	140.43	1.5	45.4	0	45.4	-	0	0	-	-	-

Sound Levels

Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Teenage Kid Seat	S	Lw		94.6	90	95	97.5	101.5	93.6	89	82.8	81.6	100.5	104.8	
Teenage Kid Swing	Sw	Lw		80.7	78.2	80.2	90.1	97.8	90.1	82.7	77.3	71	96.4	99.4	

Supplemental Material by AGI

Presented to the Recreation and Park Commission

Special Meeting

June 21, 2022

Table 1. Measured Sky Track Lmax Noise

Description	NM1 Lmax, dBA	NM2 Lmax, dBA	NM3 Lmax, dBA	Near Field Lmax, dBA
Kids on Swing and Seat	62.3	60.7	65.0	--
Adult pushing Kids Seat	58.4	57.4	68.6	--
2 Adults pushing Kids 2 Swing and Seat	62.4	62.7	71.2	--
1 Adult pushing Kid Swing	65.9	61.7	70.8	--
1 Adult pushing Teenage Kid Swing	57.0	54.8	61.1	--
Adult on Seat	61.5	54.0	70.4	--
Adult on Swing	56.6	52.4	60.5	--
Teenage Kid on Seat	64.6	63.0	70.9	--
Teenage Kid on Swing	56.0	56.7	63.3	--
Teenage Kid Seat 1ft away	51.7	51.1	--	76.6
Teenage Kid Seat 1ft away from Track	55.7	57.4	--	88.7
Teenage Kid Swing 1ft away	48.9	51.1	--	73.4
Teenage Kid Swing 1ft away	54.5	51.8	--	78.1
Teenage Kid Swing 1ft away from Track	57.1	55.1	--	88.0
Teenage Kid Swing 1ft away	55.6	55.8	--	84.8

Table 2. Arroyo Community Park Sky Track Predicted Operating Lmax Noise Levels

Receptor	Sky Track Lmax Noise Level Location, dBA	Predicted Sky Track Lmax Noise Level at Alternative Locations, dBA			
		Location A	Location B	Location C	Location D
1880 Imperial Ave Rear Property Line (NM1)	64.6	44.3	56.6	56.2	53.7
1868 Imperial Ave Rear Property Line (NM2)	63.0	43.3	55.1	55.7	52.8
Playground West of Sky Track (NM3)	70.9	45.0	61.7	60.0	57.0
Nearest Residences to the North Property Line	--	56.9	56.5	56.9	60.6
Nearest Residences to the South Property Line	--	56.7	56.9	56.1	53.9
Nearest Residences to the East Property Line	--	41.6	52.0	54.8	52.8
Nearest Residences to the West Property Line	--	65.1	--	43.4	--
Arroyo Community Pool	--	48.8	68.8	60.8	63.9

Table 3. Existing Location Impact Assessment

Receptor	Predicted Lmax Noise Level at Sky Track Location, dBA	City of Davis Residential Lmax Noise Standard (Day/ Nighttime), dBA	Impact Assessment
	Existing Location		

1880 Imperial Ave Rear Property Line (NM1)	64.6	75/70	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	63.0	75/70	Compliance/ Compliance
Playground West of Sky Track (NM3)	70.9	--	--

Table 4. Alternative Location A Impact Assessment

Receptor	Predicted Lmax Noise Level at Alternative Sky Track Location, dBA Location A	City of Davis Residential Lmax Noise Standard (Day/ Nighttime), dBA	Impact Assessment
1880 Imperial Ave Rear Property Line (NM1)	44.3	75/70	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	43.3	75/70	Compliance/ Compliance
Playground West of Sky Track (NM3)	45.0	--	--
Nearest Residences to the North Property Line	56.9	75/70	Compliance/ Compliance
Nearest Residences to the South Property Line	56.7	75/70	Compliance/ Compliance
Nearest Residences to the East Property Line	41.6	75/70	Compliance/ Compliance
Patwin Elementary School Classroom Setback	65.1	--	--
Arroyo Community Pool	48.8	--	--

Table 5. Alternative Location B Impact Assessment

Receptor	Predicted Lmax Noise Level at Alternative Sky Track Location, dBA Location B	City of Davis Residential Lmax Noise Standard (Day/ Nighttime), dBA	Impact Assessment
1880 Imperial Ave Rear Property Line (NM1)	56.6	75/70	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	55.1	75/70	Compliance/ Compliance
Playground West of Sky Track (NM3)	61.7	--	--
Nearest Residences to the North Property Line	56.5	75/70	Compliance/ Compliance
Nearest Residences to the South Property Line	56.9	75/70	Compliance/ Compliance
Nearest Residences to the East Property Line	52.0	75/70	Compliance/ Compliance
Arroyo Community Pool	68.8	--	--

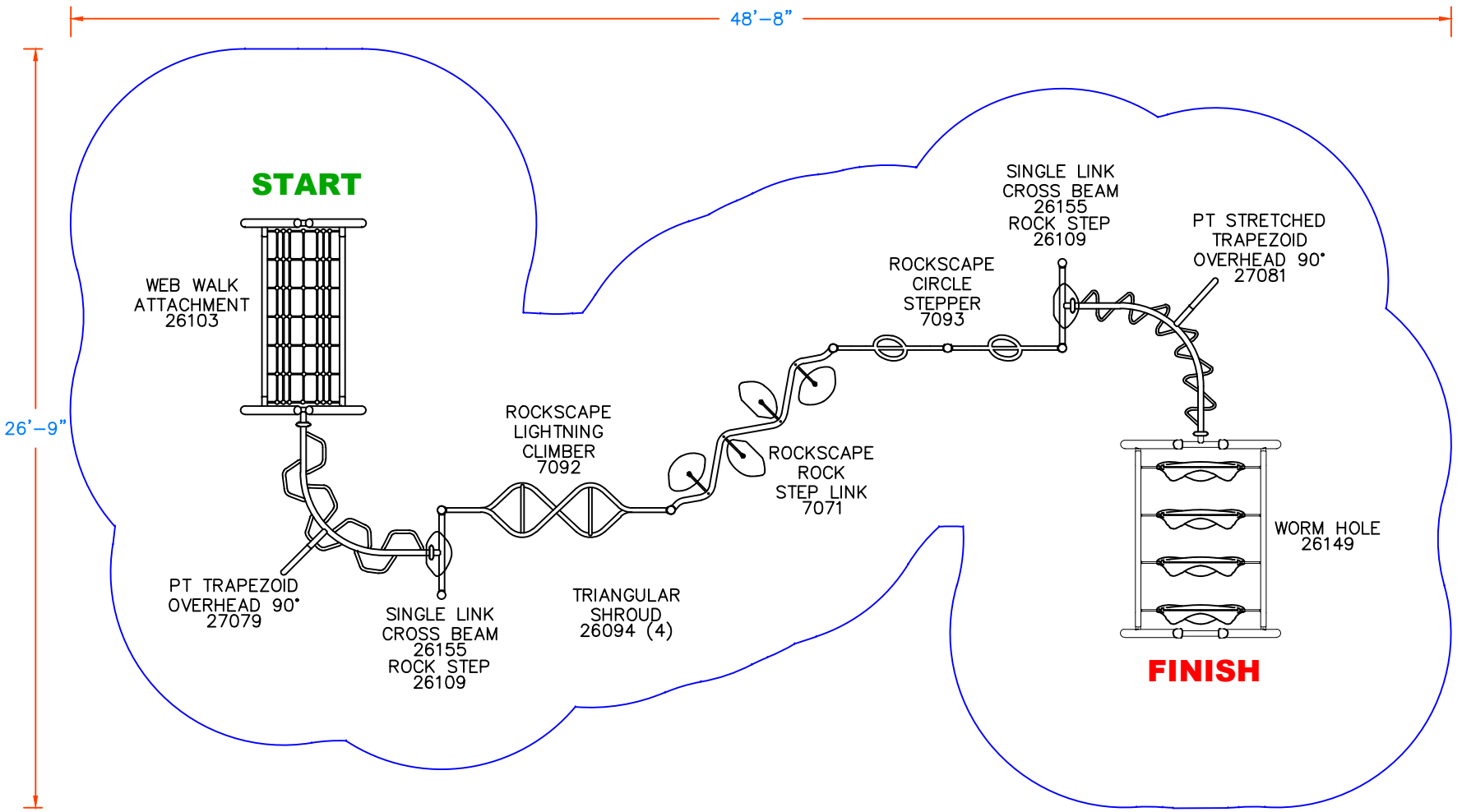
Table 6. Alternative Location C Impact Assessment

Receptor	Predicted Lmax Noise Level at Alternative Sky Track Location, dBA Location C	City of Davis Residential Lmax Noise Standard (Day/ Nighttime), dBA	Impact Assessment
1880 Imperial Ave Rear Property Line (NM1)	56.2	75/70	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	55.7	75/70	Compliance/ Compliance
Playground West of Sky Track (NM3)	60.0	--	--
Nearest Residences to the North Property Line	56.9	75/70	Compliance/ Compliance
Nearest Residences to the South Property Line	56.1	75/70	Compliance/ Compliance
Nearest Residences to the East Property Line	54.8	75/70	Compliance/ Compliance
Patwin Elementary School Classroom Setback	43.4	--	--
Arroyo Community Pool	60.8	--	--

Table 7. Location D Impact Assessment

Receptor	Predicted Lmax Noise Level at Alternative Sky Track Location, dBA Location D	City of Davis Residential Lmax Noise Standard (Day/ Nighttime), dBA	Impact Assessment
1880 Imperial Ave Rear Property Line (NM1)	53.7	75/70	Compliance/ Compliance
1868 Imperial Ave Rear Property Line (NM2)	52.8	75/70	Compliance/ Compliance
Playground West of Sky Track (NM3)	57.0	--	--
Nearest Residences to the North Property Line	60.6	75/70	Compliance/ Compliance
Nearest Residences to the South Property Line	53.9	75/70	Compliance/ Compliance
Nearest Residences to the East Property Line	52.8	75/70	Compliance/ Compliance
Arroyo Community Pool	63.9	--	--

Arroyo Park Kid Fit Davis, CA



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ARROYO PARK KID FITNESS
OC21005 KIDCOURSE 1300
DAVIS, CA
Representative
KELLY OAKES - MRC

This play equipment is recommended for children ages
5 - 12

Minimum Area Required:

Scale:
This drawing can be scaled only when in an 8 1/2" x 11" format

IMPORTANT: Soft resilient surfacing should be placed in the use zones of all equipment, as specified for each type of equipment, and at depths to meet the critical fall heights as specified by the U.S. consumer Product Safety Commission, ASTM standard F 1487 and Canadian Standard CAN/CSA-Z-614

Drawn By: SLB/es
Date: 06.28.22
Drawing Name: ArroyoKidFit_062822

RESOLUTION NO. 22-_____, SERIES 2022

RESOLUTION FOR REMOVAL AND RELOCATION OF THE SKY TRACK AT ARROYO PARK AND PURCHASE OF NEW EQUIPMENT AND INSTALLATION TO REPLACE THE EXISITNG SKY TRACK EQUIPMENT

WHEREAS, in March 2022 City staff conducted a survey with nearby residents about the recent and future amenities improvements at Arroyo Park; and

WHEREAS, the survey included proposed new locations for the Sky Track, new equipment to replace the existing Sky Track and proposed picnic shelter options; and

WHEREAS, the survey results were shared with Recreation and Park Commission; and

WHEREAS, the Recreation and Park Commission recommended to the City Council to re-locate the Sky Track equipment at location B and selected Obstacle Course equipment to be placed in the existing Sky Track location at their June 21, 2022 Special Meeting; and

WHEREAS, City staff are seeking approval from the City Council to complete a design and installation of replacement playground and relocation the Sky Track at Arroyo Park; and

WHEREAS, the City Council hereby finds that the relocation of the Sky Track as well as the installation of obstacle course equipment at the Sky Track's current location, are exempt from environmental review under the California Environmental Quality Act, (California Public Resources Code §§ 21000, et seq., ("CEQA") and the CEQA Guidelines (14 California Code of Regulations §§ 15000, et seq.). Specifically, the relocation of the Sky Track equipment is exempt from CEQA pursuant to Class 3 and Class 4 exemptions, found at CEQA Guidelines §§ 15303 and 15304. The relocation of the Sky Track to a new location will involve minor grading activities and minor alterations to the land in the new location which will not require the removal of any healthy, mature trees, and this activity is exempt pursuant to Section 15304 of the Guidelines. The installation of the Sky Track at its new location is the type of new construction of minor facilities that is exempt from CEQA pursuant to Section 15303, which exempts the construction of small accessory structures, including "garages, carports, patios, swimming pools, and fences." The Sky Track is likewise an accessory structure, and its installation is even less likely to cause environmental impacts that the listed examples. The installation is further exempt under Class 11, Guidelines Section 15311, for the construction of minor structures accessory to existing facilities. Further, there are no "unusual circumstances" that would cause the potential for a significant impact that would preclude the use of any of the exemptions listed above. CEQA Guidelines § 15300.2. The City has conducted noise studies and the new location of the Sky Track has been found not to exceed the City's noise ordinance standards day or night. Likewise, the installation of new equipment at the location of the Sky Track will be exempt from CEQA under Section 15303 and no unusual circumstances exist that could give rise to significant impacts related to this installation. The obstacle course equipment selected for the site is not anticipated to exceed the City's noise standards day or night.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Davis does hereby accept the quote from Gametime and Recreation Project Services, Inc. for the

completion of design and installation of the replacement playground equipment and relocation the Sky Track at Arroyo Park; and

BE IT FURTHER RESOLVED, that the City Council authorizes the City Manager to negotiate and execute an agreement with Gametime in the amount of $55,921.00 to design and installation of a replacement playground structure and an agreement with Recreation Project Services, Inc. in the amount of $49,900 to remove the existing Sky Track equipment and to relocate the equipment to location “B” at Arroyo Park (near the center of Arroyo Park, just east of the aquatics center), subject to the approval of the City Attorney.

PASSED AND ADOPTED by the City Council for the City of Davis on this 30th day of August 2022 by the following vote:

AYES:

NOES:

ABSENT:

Lucas Frerichs
Mayor

ATTEST:

Zoe S. Mirabile, CMC
City Clerk