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DEPARTMENT OF  
CONVENTION, CULTURE  
AND LEISURE

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January 12, 2001

City Council  
Sacramento, California

Honorable Members in Session:

**SUBJECT:** AUTHORIZATION TO AWARD A PROFESSIONAL SERVICES CONTRACT  
TO KITCHELL FOR CONSTRUCTION PROJECT MANAGEMENT OF THE  
MUSIC CIRCUS/SACRAMENTO THEATRE COMPANY RENOVATION  
PROJECT

CONTINUED  
FROM 1-30-01  
TO 2-13-01

AG 2001-023

**APPROVED**  
FEB 20 2001  
OFFICE OF THE  
CITY CLERK

**LOCATION AND COUNCIL DISTRICT:**

The Music Circus/Sacramento Theatre Company site is located in Council District 1 at the corner of H and 15<sup>th</sup> Streets.

**RECOMMENDATION:**

This report recommends that City Council:

Award the construction project management contract to Kitchell in the not to exceed amount of \$545,000 for construction project management services for the Music Circus and the Sacramento Theatre Company renovation project with the stipulation that:

- a. A notice to proceed with construction will only be issued if City Council certifies the final Environmental Impact Review (FEIR) and the 30 day challenge period has ended without a resulting lawsuit.
- b. Total contractual obligations under this contract are limited to \$125,000 if the Certificates of Participation (COPs) are not issued to finance the Music Circus/Sacramento Theatre Company renovation.

**CONTACT PERSON:** Laura Sainz, Economic Development Specialist, 264-2677

**FOR COUNCIL MEETING OF:** January 30, 2001

## **SUMMARY**

The City and County have been working with the Music Circus and the Sacramento Theatre Company to renovate the existing facilities of both theater groups. The renovation budget is \$8.9 million for construction costs. The City and County have formed a Joint Powers Authority that may be used to issue Certificates of Participation to finance the construction costs.

In order to ensure the construction process is efficient and within budget, the City will contract with Kitchell to manage the plan and budget review and as well as the bid process and construction. This contract is not the general contractor contract, and should be viewed as separate from the actual construction contract. The Kitchell contract will be a maximum amount of \$545,000, which is included in the \$8.9 million project budget. If the Certificates of Participation are not issued to finance the project, the Kitchell contract will be limited to up to \$125,000, to pay for plan and budget review, as well as consulting services on the bid process. The initial \$125,000 will be paid for out of the H Street Theater CIP Fund, which will be reimbursed if/when the Certificates of Participation are issued.

## **BACKGROUND INFORMATION**

The City and County have been working with the Music Circus and the Sacramento Theatre Company to renovate the existing facilities of both theater groups. The project was presented to both the City Council and County Board of Supervisors for conceptual approval in October of 1999 and 2000. Most recently, City Council and the County Board of Supervisors approved a Joint Powers Authority in order to provide a structure to issue Certificates of Participation to finance the construction costs.

The renovation project will include a new entry area, box offices and restrooms, as well as the renovation of existing stages, dressing areas and office space. Also included is a permanent tent structure for Music Circus performances. The project budget is \$8.9 million for construction costs. This includes \$545,000 for an on-site construction project manager. The on-site construction manager was part of the Appendix C Business Agreement signed by the theater groups, the City and the County. The role of the construction project manager will be to keep the construction process on schedule and within budget. The construction project manager will also keep the City informed of major issues related to the construction as well as guide the theater groups through the renovation period. This contract is not the general contractor contract, and should be viewed as separate from the actual construction contract.

## **POLICY CONSIDERATIONS**

The renovation of the Music Circus and Sacramento Theatre Company is consistent with the City Council's overall objective to build the downtown area into an arts and entertainment district.

## FINANCIAL CONSIDERATIONS

The project is dependent on the final EIR certification and the successful sale of the Certificates of Participation. The Certificates of Participation will not be issued until the CEQA process, including all appeal periods and related actions are complete. If the FEIR is not certified, and/or the Certificates of Participation are not issued, the City's liability on this contract is limited to \$125,000.

The initial payments for the Kitchell contract will be paid for out of the H Street Theater Capital Improvement Project (CIP) (MA 81). The H Street Theater CIP will be used to fund the contract costs up to the time the COPs are issued. The current balance of the H Street Theater CIP is approximately \$127,000. Initially, the H Street Theater CIP had a 50% matching requirement for the theater groups on any expenses related to improvements on the property. City Council and the County Board of Supervisors waived the matching requirement in October 2000 for pre-construction related expenses. If/when the CEQA appeal period is complete (and all related actions) and the COPs are issued, the H Street Theater CIP will be reimbursed out of the bond proceeds.

## ENVIRONMENTAL ISSUES

The Music Circus/Sacramento Theatre Company renovation project has a completed Environmental Impact Report, and has been approved by both the Planning Commission and the Design Review Board. An appeal of the Planning Commission decision is scheduled to be heard at City Council on February 6, 2001.

**ESBD:** Not applicable.

Respectfully submitted:



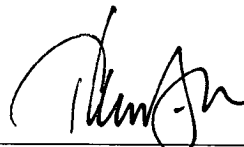
BARBARA BONEBRAKE, Director  
Convention, Culture and Leisure Department

## RECOMMENDATION APPROVED:



ROBERT P. THOMAS  
City Manager

## APPROVED:



THOMAS V. LEE  
Deputy City Manager



**RESOLUTION NO. 2001-112**

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF \_\_\_\_\_

**RESOLUTION AWARDING A PROFESSIONAL SERVICES AGREEMENT WITH KITCHELL FOR CONSTRUCTION PROJECT MANAGEMENT SERVICES FOR THE MUSIC CIRCUS/SACRAMENTO THEATRE COMPANY RENOVATION PROJECT**

BE IT HEREBY RESOLVED BY THIS CITY COUNCIL THAT:

1. The City Council awards Kitchell the contract for the construction project management services for the Music Circus/Sacramento Theatre Company renovation project in an amount not to exceed \$545,000 with the stipulation that:
  - a. A notice to proceed with construction, pursuant to a construction contract to be awarded at project approval, will only be issued if City Council certifies the final Environmental Impact Report, the project is approved, and the 30 day challenge period has ended without a resulting lawsuit.
  - b. Total contractual obligations under this contract are limited to \$125,000 if the Certificates of Participation (COPs) are not issued to finance the Music Circus/Sacramento Theatre Company renovation project.
2. The H Street Theater CIP will be used to fund costs related to the contract prior to the issuance of the Certificates of Participation. If/when the Certificates of Participation are issued, the H Street Theater CIP will be reimbursed for all expenses related to this contract.

\_\_\_\_\_  
MAYOR

Attest:

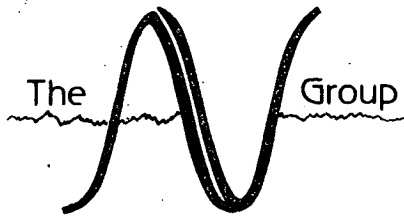
\_\_\_\_\_  
City Clerk

FOR CITY CLERK USE ONLY

Resolution No.: \_\_\_\_\_

Date Adopted: \_\_\_\_\_

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# The Acoustics & Vibration Group

5700 Broadway Sacramento, CA 95820-1852

916-457-1444 FAX: 916-457-1475

Consultants in Acoustics, Vibration & Noise Control

January 30, 2001

Anne Burke  
1421 G Street, #5  
Sacramento, CA 95814

**SUBJECT:** Results of Review of Final EIR for California Musical Theater and Comments regarding Its Completeness and Accuracy

Dear Anne,

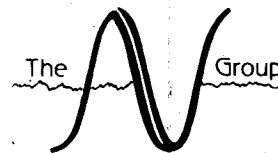
This letter report provides responses and comments on the Final EIR [1]\* prepared as part of the Music Circus renovation project. The staff report to City Council regarding the proposed renovation [2] was reviewed also. The design of the tent structure has been an ongoing process. The "final" design was provided on January 26, 2001. This "final" design has not been evaluated by the City's noise consultant, nor have the interim designs. The evolving nature of the design makes any analysis very difficult and limits the ability of City Council to make an informed decision on accuracy and completeness of the Final EIR. The "final" design of the tent is not reflected in the Final EIR in any form or fashion. The only attempt at an analysis of the "final" was performed by the CMT's acoustical consultant [3]. This document has been reviewed and comments are made regarding the accuracy and completeness of this analysis. However, since this is not an independent evaluation and the person completing the analysis does not meet the requirements of the City's Noise Element [4,5], this analysis is of limited value and has no influence on the completeness or accuracy of the Final EIR. That is, he is not registered as professional engineer in California, is not certified by the Institute of Noise Control Engineers (INCE) and is not a member of INCE. Thus, his evaluation would not be allowed per the City's requirements. The biggest issue remains that the proposed tent design does not reflect what is described in the Final EIR and has not been evaluated by the City's noise consultant. An additional concern is that the alternative has not been analyzed by anyone. Several more problems exist and are discussing the following sections.

The results of the Final EIR must first be questioned because the noise section has been completely rewritten with regards to the data provided, conclusions regarding significance of impacts and the need for mitigation measures compared with the Draft EIR [6]. New sound data has been provided using the metrics dictated by the Noise Ordinance [7] but a full report was not made available regarding how this data was taken and when. Since that time, additional details have been provided by the City's noise consultant in response to the questions posed. The Draft EIR said there was no impact while the Final EIR says there are impacts and mitigation measures are proposed. These are not "Minor Changes and Edits to the Draft EIR".

The remainder of this report will address the results and conclusions of the Noise section of the Final EIR using the format of the Final EIR. The remarks start with section 4.2 Noise.

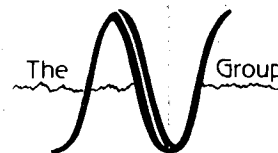
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\* - Number in brackets refers to references listed at the end of this letter report.



## 1. Environmental Setting

- a. The Final EIR continues (See Draft EIR [6]) to state that no complaints were received in either 1999 or 2000 without acknowledging that residents have informed City officials that they called the police and the police refused to record these complaints. The police discouraged people from complaining even though the Noise Ordinance states that the police department is to be notified of potential noise exceedances. This same problem was observed at Cal-Expo. To remedy the problem, Cal-Expo was required to continue concerts for another year with the existing system and to implement a complaint line and advertise the number. This allowed real complaint data to be recorded. The CMT has not provided such a complaint line and so it is difficult to know how many complaints were made or how many people would have complained if they had some place to call that would accept and process their complaints.
- b. New background sound levels, i.e., sound levels measured without the Music Circus in operation, are presented in Table 4-1. These results do not meet the requirements of the Noise Ordinance as is explained below.
  - i. The Noise Ordinance requires that all measurements be made using the "slow" integration setting but this data was acquired using the "fast" setting [8]. The City emphasized this requirement that tests be done with the "slow" setting during the evaluation of the Calvary Christian church school project.
  - ii. A minimum of 1-hour of sound measurements must be made during the hours that the noise source would be in operation. The actual performances start at 8:00 p.m. and end from 10:00 to 10:30 p.m. Since people are arriving and departing before the actual performance, background sound levels must be measured from approximately 7:00 p.m. to 11:00 p.m., again, in 1-hour intervals or a manner that allows the results to be assessed in this interval length.
  - iii. Since sound is generated during rehearsals that are held during the day and the evening, measurements are required during all hours of rehearsal. This data is completely lacking.
  - iv. The data published in Table 4-1 represents the sound measured in 10-minute intervals before and after the performance. However, the time before the event does not represent the hours when the event would have influenced the neighborhood. For example, data provided by the applicant [9,8] for position M2 at the apartments on the south side of G Street, show the measurement was made from 5:26 p.m. to 5:36 p.m. This is 2.5 hours before the program started and can not be considered representative of the background sound level that would be encountered during the performance or during the time when activities related to the performance would occur. All before the performance "background" sound level tests were finished before 7:00 p.m. Since these measurements were made on the night of a performance, they can not be considered "background" sound levels if the performance was a cause of any of the noise or they are not representative of background sound levels during the hours when activities at or associated with the Music Circus could impact the neighborhood.
  - v. Similarly, the measurements made after the performance were made starting only 15-minutes after the show ended. This sound was generated by patrons leaving the performance and by cleanup activities at the Music Circus. Thus, since no data



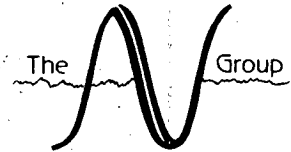
has been acquired on the same night of the week when there was no performance, the data does not represent the background sound.

- vi. Based on background sound level measurements made on a Sunday night at Positions M2 and M3 by me, I believe that the data in Table 4-1 do not represent the true background sound levels. It should be noted that because this is a downtown location, the background sound level would be expected to vary by the day of the week. That is, background sound levels may be fairly consistent on Monday through Thursday, but for Friday through Sunday, sound levels are expected to vary. Thus, background sound levels should be taken on at least four nights to have at least some representation of "typical" background sound levels. Because of rehearsals, it would also be necessary to make measurements during the hours when these occur. Before the season begins, rehearsals can last from 9:00 a.m. to 9:00 p.m. according to your comments.
- c. Background sound levels were measured by TAVG on Sunday, January 7, 2001, between the hours of 8:00 p.m. to 10:00 p.m. to get an initial estimate of existing background sound levels. Traffic counts were made during these tests also. Testing occurred at two of the positions used in the Final EIR. They are designated M2 and M3. Position M2 was at 1410 G Street, at the east edge of the property, 24 feet south of the edge of the near lane on the south side of the street. Position M3 in this test was at 1421 G Street, at the east end of the property, 27 feet from the edge of the near lane on the north side of the street. Traffic volumes between 9:00 p.m. and 10:00 p.m. were only about 50 percent of the volume counted between 8:00 p.m. and 9:00 p.m.
  - i. Table I presents the background sound levels measured at each position using the "slow" meter setting. The sound level exceeded 30 minutes in an hour,  $L_{50}$  sound level, was only 51 dB at each position.

**TABLE I.** Background Sound Levels Measured on Sunday, January 7, 2001, at Two Positions on G Street between 14<sup>th</sup> and 15<sup>th</sup> Street without any Music Circus Activity.

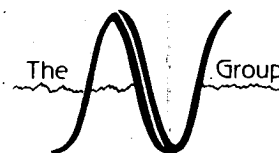
| Measurement Position | Test Interval, p.m. | Measured Sound Level, dB(A) |           |           |          |          |          |          |
|----------------------|---------------------|-----------------------------|-----------|-----------|----------|----------|----------|----------|
|                      |                     | $L_{MAX}$                   | $L_{1.7}$ | $L_{8.3}$ | $L_{25}$ | $L_{50}$ | $L_{90}$ | $L_{eq}$ |
| M3,<br>1421 G St.    | 8:00-9:00           | 76                          | 64        | 58        | 53       | 51       | 49       | 55       |
|                      | 9:00-10:00          | 77                          | 62        | 57        | 53       | 51       | 49       | 54       |
| M2,<br>1410 G St.    | 8:10-9:00           | 70                          | —         | 57        | 52       | 50       | 50       | 54       |
|                      | 9:00-10:00          | 68                          | —         | 58        | 54       | 51       | 50       | 54       |
|                      | 10:00-10:13         | 76                          | —         | 56        | 53       | 51       | 50       | 55       |

- ii. Measurements of the tonal content of the sound were made in 5-minute intervals at each test position. These results are available on request.
- d. Part of the existing environment for seven weeks of the year includes the sound generated by Music Circus performances. The performances occur in the evening, seven days a week and have for several years. Rehearsals normally take place during the day, con-



tributing sound to the environment. Thus, sound levels generated by Music Circus performances and rehearsals should be presented as part of the existing environmental setting. This has not been done. Instead, the data is provided in Table 4.5 of the Final EIR under Mitigations. Several errors exist in this analysis and lack of explanation of the existing condition including noise from activities at the Music Circus.

- i. First, as with the background sound levels, the measurements were made using the "fast" meter response rather than the "slow" response required by the City.
- ii. Second, measurements were not made at each test measurement position for the full duration of the test. That is, the meter was moved around and only one of the *critical* positions was tested over a full hour as required by the Noise Ordinance. For example, Position M1 was tested from 7:11 to 8:11 p.m., but the performance did not start until 8:00 p.m., so only 11 minutes of the test could have included any musical noise. The remainder of the sound would have been generated by preparations for the performance and by people heading for the show or by background sound sources. Similarly, position M2 was monitored from 7:02 to 8:02 p.m. Position M3 was tested from 8:12 to 9:12 p.m. which should have included a full hour of the performance. However, the noisiest sections of many performances occur near the climax or end of the show. This would have occurred between 9:30 and 10:00 p.m. or later. Only one position, M4 outside the hotel on 15<sup>th</sup> Street, was tested between 9:06 p.m. and 10:06 p.m. Since no information was provided regarding the start or ending of the music, it is even unclear whether this test included measurements after the performance. Sounds would drop dramatically as people gather their belongings and head for their vehicles. This position had the highest background sound levels and would have been expected to have the lowest impact.
- iii. Though the Final EIR says that tonal measurements were made as required by the Noise Ordinance, such measurements were made only within the tent and not at the receiver as is required. The measurement of the sound amplitude at each tone was made during consecutive intervals rather than simultaneously. This may have provided some good data for evaluating the sound loss through the tent, but without concurrent measurements at the receiver locations, the accuracy would be limited.
- iv. Another problem is that continuous and simultaneous sound measurements were not made inside the tent while tests were done at the four receiver positions. Thus, there is no way of knowing whether any of the sound tests made at the four receiver positions correspond to the highest sound levels generated inside the tent.
- v. This makes it impossible to predict exterior sound levels for existing conditions. This is extremely important in confirming that an accurate model can be built to predict what was measured. If you can not predict the sound level at the noise-sensitive receptors for current conditions, you will not be able to accurately predict future conditions.
- vi. Importantly and erroneously, the Final EIR assumes that the field measurements made during the performance of Evita represent the worse case condition. There are several things wrong with this assumption. First, the performance tested was a Pre-Performance presentation, with invited guests only. Thus, crowd noise and sound levels from the speakers may not have been representative of actual performances. Second, neighbors have stated that Evita was not the loudest production.



This conclusion has been corroborated by a long-term subscriber who stated explicitly that Evita was not the loudest performance he attended in the year 2000. This also ignores the possibility that sound generated by performances in previous years could have been louder than the single test conducted for this study.

- vii. The project proposes to host at least 15 concerts at the Music Circus facility and nothing appears to prevent additional events. My experience monitoring the sound at Cal-Expo's concerts held during the State Fair shows that you can not control the actions of the person in charge of setting the volume or mixing the sound. The analysis provides no information about the type of events that could occur or the sound levels that could be produced. This is critical since many musical groups have substantial low frequency sound that more easily penetrates the tent design proposed in the Final EIR.
- e. That there is a difference in the sound produced by different performance is clear from the results measured on Wednesday, August 16, 2000, by The Acoustics & Vibration Group, TAVG, during the performance of "Ain't Misbehavin'". Table II presents the results of sound tests made at position M2, 1421 G Street, during this performance.

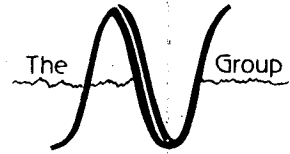
**TABLE II.** Sound Levels Measured on Wednesday, August 16, 2000, at One Position on G Street between 14<sup>th</sup> and 15<sup>th</sup> Street During a Performance of 'Ain't Misbehavin' at the Music Circus.

| Measurement Position | Test Interval, p.m. | Measured Sound Level, dB(A) |                 |                 |                 |                 |                 |                 |
|----------------------|---------------------|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                      |                     | L <sub>MAX</sub>            | L <sub>01</sub> | L <sub>10</sub> | L <sub>25</sub> | L <sub>50</sub> | L <sub>90</sub> | L <sub>eq</sub> |
| M3,<br>1421 G St.    | 8:05-9:00           | 75                          | 69              | 65              | 62              | 59              | 55              | 61              |
|                      | 9:00-9:10           | 67                          | 65              | 62              | 59              | 58              | 57              | 59              |

- i. An L<sub>50</sub> sound level of 59 dB(A) was measured as shown in Table II. This sound level exceeds the limits of the Noise Ordinance presented in the Final EIR. Since the background sound levels presented in Table I are significantly less than the values in Table II, it suggests that the sound was due to the Music Circus performance. As a minimum, it proves the need for both additional background sound level tests and Music Circus performance sound level measurements.
- ii. Tonal sound level measurements were made during the same interval. These are available for review upon request.

2. Noise Regulations, Plan and Policies

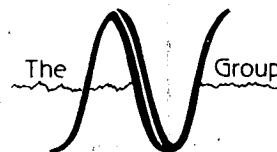
- a. Section 4.2.3.2, pages 3-6 and 3-7 present the supposed requirements of the Noise Ordinance as they apply to each measurement position. However, the Ordinance makes it clear that background sound levels have to be measured during the complete time that an activity could influence residences, particularly if the sound could vary. This means the noise limits have to be shown in 1-hour intervals from 7:00 p.m. to 11:00 p.m. for each night of the week or for each night where the background sound levels vary. Additionally, because rehearsals are done during the day, background sound level tests have to be conducted during the day. Sound level measurements during rehearsals are



also required. One of TAVG's interviewees was visiting a person who lives on G Street between 14<sup>th</sup> and 15<sup>th</sup> Streets this past summer during one of these rehearsals. They were inside the home with all doors and windows closed. It was reported that the sound was sufficiently high that they could not carry on a conversation and had to pick up their chairs and move to the opposite end of the house to allow conversation in a normal tone of voice.

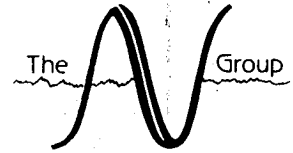
### 3. Impacts and Mitigation Measures

- a. The analysis of the proposed project and the alternatives is very important to assessing the impacts and describing the need for mitigation measures. As with much of this noise study, there is an abundance of errors in the Final EIR. These are discussed in the following sections.
  - i. A tent or non-tent structure serves two functions for the performances of the Musical Circus. First, either structure provides acoustical reinforcement within the tent to blend the sound and send sound equally to all seats. Second, the skin keeps exterior sound from entering the space, reducing the enjoyment of the performance. Similarly, and very importantly for the tent structure, the skin must prevent sound from escaping from the interior and impacting the neighbors. The first two functions of the structure serve to enhance the enjoyment of the audience. The final function serves to prevent adverse impacts and is required by the Noise Ordinance. Thus, the construction of the "shell" of the facility is paramount to providing good acoustics inside and outside. However, the purpose of the Final EIR is only to address the need to eliminate external impacts. The design of this shell is very important and must be explained correctly and precisely if those affected are to be able to evaluate the design and the City Council is to have confidence in the analysis and the design.
  - ii. An analysis is not provided for alternative AA, the erection of a permanent non-tent structure on the site, at all. The Final EIR says the impacts are the same as for the proposed project. This conclusion is, of course, without merit, since a permanent non-tent structure would have significantly higher sound losses through all exterior building partitions. Thus, exterior sound levels would be much lower, resulting in no significant impact. Evaluation of this option is required if City Council is to be able to effectively evaluate alternatives.
  - iii. A complete description of the change in setting from existing to proposed is not provided from an acoustical point of view. This would have required a model of existing conditions and a full understanding of how sound gets from the tent to the receiver positions. The construction of the existing tent is not explained nor contrasted with the proposed tent structure. The existing tent material has a greater weight per square foot than the material described in the Final EIR for the new tent. The existing tent has many more openings around the bottom "wall" portion of the tent. Determining whether this is the major sound path is critical because the existing tent includes 10 foot high sound walls around the edge of the streets. Thus, sound escaping through an opening in the tent must travel over this wall before reaching a receiver. If most of the sound escapes through the top part of the tent, these walls may not be of as much importance. However, without an analysis



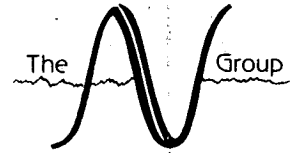
- of the current system and a model that accurately predicts the sound level at each of the receiver locations, the importance of each path can not be known.
- iv. The renovation of the Music Circus will result in the elimination of the walls around the perimeter of the site. The new facility will have "solid" walls on the bottom with tent material forming the roof. The construction of the solid walls is not described but it will contain doors on the G Street side of the structure. There will be no walls between these building elements and the receiver. Any sound that escapes from these components will have a clear line of sight (hearing?) to the receiver.
  - v. The new tent structure is defined in the Final EIR as comprising a single layer of Fabrasorb II. The mitigation measures say that this material will be doubled. There is no discussion of a shell material. This is not the tent design evaluated by the City's noise consultant. It also has no relationship with the "final" design proposed by CMT and delivered to TAVG on January 26, 2001, at 4:00 p.m.
  - vi. During a January 8, 2001, meeting with the City to discuss this project, I was told that the new tent structure would comprise an outer skin, two layers of a 1-inch thick, vinyl wrapped, sound absorbing material and an inner open weave material. This does not represent the tent design evaluated by the City's noise consultant as described during subsequent telephone conversations of the project. It differs substantially and significantly from the "final" proposed tent design. The City [10] and the City's noise consultant [8] have provided data regarding the material described in the January 8<sup>th</sup> meeting. The shell product data sheet states that the material is transparent to tones of 63 Hz and below. That is, sound passes right through the material. This same document says that the outer shell material stops only 10 dB(A) of sound. This means that if the average sound level within the tent is 86 dB(A) as shown in the data from the City's noise consultant, the sound exterior to the tent would be 72 to 76 dB(A). There is a range of numbers because of the influence of reflections from adjacent structures. This sound reduction is less than what you would get from a single sheet of 1/4" gypsum board. A data sheet provided by the manufacturer [8] indicates that the sound transmission loss at 125 Hz is only 6 dB as opposed to the 11 dB assumed in the analysis by the City's noise consultant. The analysis by the City's noise consultant assumes 11 dB sound reduction at 31 and 63 Hz while the product supplier says that the value is 0 dB. The product brochure says that the increase in sound loss through the material achieved by doubling the material is very nominal.
  - vii. The City's noise consultant believed that the shell material, weighing only 0.25 lbs./sq. ft. was being doubled and that there was substantial air space between them. This is not the design described in the Final EIR nor the design described by the City during the January 8 meeting. It is far different from the "final" design now being proposed. A single layer of the shell material has an STC rating of only 17. A quote from the product supplier is apropos in this case. "Because fabric structures are very low in mass, the sound transmission coefficient is limited. In applications with high exterior noise levels and low (interior) noise goals, fabric skylights may not be appropriate." In this instance, the Music Circus will generate high interior sound levels while the exterior residences require a quiet environment. The proposed product is able to stop sound about equal to that of a typical bathroom door with a 1/2" undercut. That is, in a normal tone of voice, you could

- carry on a conversation through the door by paying only slightly more attention than normal.
- viii. Another problem occurs with the sound absorbing material. The ability of the proposed material to absorb sound depends on how the material is applied. The City's noise consultant was requested to provide data regarding the mounting method since the absorption coefficients appeared too high for the proposed application. The consultant did not understand the request and was not aware of the different ASTM mounting methods. When I explained [11] that the data appeared to be from a baffle type mounting rather than a mounting where the material is placed against a surface as proposed for use at the Music Circus, he appeared to understand. He agrees that the absorption coefficients would be different using the two methods and that the coefficients presented for the baffle mounting were not the appropriate ones to be used in the Music Circus. The City's noise consultant was not aware that two, 1-inch thick sound absorbing pads, each encased in an individual plastic wrapping, were to be used. This was the design provided by the City during the meeting of January 8, 2001. He seemed to agree that the sound absorption values would be diminished, particularly at high frequency, because of the individual wrapping.
- ix. The City's noise consultant provided a spread sheet containing all of the information and formulas used in the prediction of exterior sound levels at the four measurement positions. I pointed out in a telephone conversation held on January 9, 2001, with CH2M-Hill and RSW Engineering that there appeared to be an error in the data. Evaluation of the spread sheet indicates that there is an error and that the procedures used to predict sound passing through the fixed lower walls was completely different from the method used on the tent structure. The latter method does not appear to be correct and the consultant has not been able to provide an explanation of why the analysis differs between the two surfaces. The distances used between the tent wall and the nearest residence appears to be incorrect also. In some cases, such as the apartments on the south side of G Street near 14<sup>th</sup> Street, the distance from the tent structure to the property line is less than 50 feet, not the 125 to 150 feet shown in the spread sheet.
- x. Another part of the analysis that is lacking is the evaluation of the influence of the windows and doors that will be in the walls of the permanent part of the structure. A complete description of the non-tent wall is not provided. The City's noise consultant does not appear to have clear idea of the construction or he would have included the influence of the windows and the doors. If the doors are not perfectly sealed, sound will be transmitted through the openings and straight to the residences. Fire exit doors on the G Street side of the facility face directly at the Client's door on the north side of G Street. A hallway separates the exterior wall from the audience area, but there are several doors around this inner wall. According to CMT, some of these doors will be kept open as they provide ingress and egress for the performers. Thus, this hallway will be or has the potential of being filled with sound. The analysis can not be considered complete without an evaluation of the influence of these building components. The total sound at a receiver is the sum of the sound propagating along all paths. This includes sound transmitted through the tent, through the windows, through the doors and through the non-tent walls. If the sound along any path is within 10 dB of the sound along another path, the sum will be at least 1 dB more than the higher of the two values.



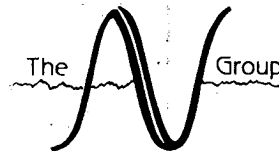
Thus, the analysis must include some safety factor. Additionally, the final sound tests will include the background sound. That is, if the background  $L_{50}$  sound level is 54 dB, if the sound along all paths sums to within 3 dB of the background value, the total will exceed the limits of the noise ordinance. That is, the sound from the Music Circus could not exceed 51 dB with this assumption without exceeding the City's noise limits. A minimum 2 dB safety factor should be included in the design analysis.

- xi. A new "final" tent design has been proposed. Kristy Chew of the City of Sacramento, Planning Department, called on January 25 to say that the third design was now finished and that the architects drawing of this design would be received by CMT then delivered to TAVG on Friday, January 26, 2001. This design was delivered and does not include any of the elements of the material described in the Final EIR. According to the City's Noise Consultant, he has not evaluated this design. He has sent a memo to the City saying that he agrees with me that the "final" design should be evaluated as it differs from what he had evaluated for the Final EIR. He indicated that the City said that it would require a change in the scope-of-work to do an analysis of this "final" design.
- b. Impacts are determined to be significant at M1 if performances occur after 10:00 p.m. for the proposed project. The same conclusion is reached for Alternative AA even though no analysis was done to substantiate this. The conclusion is very unlikely as can be inferred by the lack of complaints at the Memorial Auditorium or the Community Center. Exterior noise has not been shown to be a problem near the Community Center even though a hotel is next to it.
- c. The main mitigation measures offered for the proposed project is to add a second layer of Fabrasorb II or other acoustic lining to the structure. Fabrasorb II has little or no effect on the ability of a structure to prevent sound transmission through a structure. This material only affects the amount of sound within the tent, not the amount of sound passing through the walls of the tent. The City's noise consultant appears to have done his analysis assuming that the shell material was being doubled, not the acoustical lining. Thus, even the limited analysis done, may be wrong because of inconsistency in assumptions. Thus, the analysis is deficient and incorrect.
  - i. The conclusion reached regarding the influence of the mitigation measures also is incorrect for all the reasons described earlier. These include incorrect assumption regarding worse case interior sound levels for Music Circus performances and the 15 proposed concerts, lack of sound tonal measurements at the receiver and in the tent, incomplete evaluation of all sound paths, use of incorrect sound loss data for the tent material, use of incorrect sound absorption data, employing differing and incorrect computational methods for sound loss through non-tent and tent walls, lack of an analysis of existing conditions and the influence of existing walls around the perimeter of the site and incorrect measurement of background sound levels and sound levels generated by Music Circus performances.
  - ii. The conclusions are contrary to the results obtained by TAVG during the monitoring of Ain't Misbehavin' in August when  $L_{50}$  sound levels were measure at 59 dB(A), 4 dB(A) over the 55 dB(A) limit in the Noise Ordinance, and far higher than measured by the City's noise consultant. There is no indication that the pro-



- posed system would reduce these high sound levels to less than the limits of the Noise Ordinance.
- iii. The City is proposing as a mitigation measure to allow completion of the project and to monitor the sound at the noise-sensitive receptors after it is finished. Since only one pre-performance offering from the Music Circus was monitored and we do not agree that this represented the highest sound levels, it is unclear how a sound amplitude or the tonal content could be selected for use in the test. Based on my field results from Ain't Misbehavin', the duration of the sound test becomes paramount when background sound levels vary. I monitor sound levels during the Cal-Expo concerts at the State Fair, and am aware of the difficulty of controlling the volume that the band's board operator wants to set, even though sound limits are written into their contract. Little is known about the type of concerts that are to be offered or how the sound levels will compare. Nothing in the Final EIR appears to prevent the use of the facility for additional functions that could produce equal or higher sound levels. Agreeing on a source level and the tonal content is paramount to successfully completing the test and satisfying the residences. Next, an agreement would have to be made when the tests were to be run. Since the City did not acquire any background sound levels on days when there was no Music Circus performance, nor any sound data during rehearsals, choosing even the correct time to do the test is critical. The Noise Ordinance requires comparison of tonal content when complaints continue. A standard for acceptable sound level and tonal content would be agreed upon to discern what is acceptable.
  - iv. If the results of the proposed tests were negative, the City is proposing to add more sound absorbing material, move the speakers, adjust the volume or change the hours of operation. As stated earlier, adding sound absorbing material would have little or no effect on the exterior sound level. Moving the speakers is not likely to have any influence on exterior sound levels because their locations are selected to cover the audience. Without adequate sound at the audience, there will be no audience. As noted above, attempting to reduce the volume is very difficult, particularly at any of the 15 concerts or other functions that are not under the direct control of CMT.
  - v. I believe that no mitigation measures are available unless the structure will handle substantially more weight or a permanent, non-tent wall and roof structure is built as proposed for Alternative AA.
- d. The mitigation measure proposed for Alternative AA is to add another layer of Fabrasorb II. This is almost humorous, if it was not so silly. First, the building would be designed to provide acceptable sound loss through the structure. Second, the proposed material would not be added for aesthetic reasons and would have very little influence on the sound loss through the walls and ceiling. This statement about adding Fabrasorb II is only made because no analysis was done.
  - e. The Final EIR notes that the heating, ventilating and air-conditioning equipment will generate sound. This equipment is to be mounted on the "hard" roof above areas such as the bathrooms. Some of these spaces are near the residences, but no sound impact analysis has been done. Thus no mitigation measures are offered.

There is more than sufficient evidence in these comments to show that the Final EIR is not complete and not accurate. The lack of an independent analysis of the "final" design and the resulting im-



fact renders impossible any conclusions regarding noise impacts. The lack of any analysis of the alternative to build a permanent, non-tent structure does not meet CEQA requirements or the Council's need to information about alternatives to make an informed choice.

The California Musical Theatre hired an acoustical consultant to evaluate the proposed "final" design [3]. This consultant does meet the minimum standards of the Noise Element [5] of the General Plan for someone preparing an acoustical analysis for an EIR. This person has made no measurements of any Music Circus performances or of the background sound levels. Thus, the basis of his analysis lacks any authenticity. The procedures used to calculate exterior sound levels from interior sound levels is not correct. The City's noise consultant said that he could not agree with the procedures used in the analysis also. Since he is the CMT's consultant, his analysis and conclusions are not relevant to whether the Final EIR is complete and accurate. It remains incomplete and inaccurate for the reasons given above.

Please call if you have any questions regarding the results or the comments and conclusions.

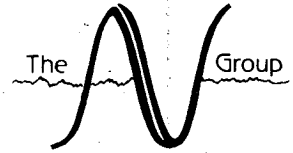
Sincerely,

A handwritten signature in cursive script that reads "Steve Pettyjohn".

Steve Pettyjohn, Principal  
Certified: Institute of Noise Control Engineers-1981

## REFERENCES

1. Anon., *Final Environmental Impact Report, Music Circus Renovation Project*, State Clearinghouse #2000042081, for City of Sacramento, Planning and Building Department, Planning Division, by CH2MHill, Sacramento, California, November 2000.
2. G.L. Stonehouse, "P00-029 - Music Circus Renovation", for City Council, by Planning Building Department, Sacramento, January 9, 2001
3. Anon., "Acoustical Brief Regarding Exterior Noise Control and Conformance to Sacramento City Codes and Planning Guidelines", for California Musical Theatre, Sacramento, by Robert F. Mahoney & Associates, Boulder, CO, January 1, 2001.
4. City Planning Division, Draft Environmental Impact Report, M85-049; SCH#86101310, March 1987.
5. Sacramento City Planning Commission, "Noise Element" from Chapter 8, "Health and Safety Element" from the *City of Sacramento General Plan Updated*, Adopted January 19, 1988.
6. Anon., *Draft Environmental Impact Report, Music Circus Renovation Project*, State Clearinghouse #2000042081, for City of Sacramento, Planning and Building Department, Planning Division, by CH2MHill, Sacramento, California, September 2000.



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7. Noise Control Ordinance of the City of Sacramento, Ordinance No. 3872, approved by the City Council, May 31, 1977 and as revised. See Sacramento City Code, Chapter 66.
8. R. Whitaker, "California Music Theater/noise info", facsimile to S. Pettyjohn, The Acoustics & Vibration Group, Sacramento, K. Chew, City of Sacramento, Planning and Building Department, W. Haydon, CH2M-Hill, Sacramento, from RSW Engineering, Beaverton, OR, January 11, 2001.
9. K. Chew, "Re: Requested Noise Data", facsimile transmittal to The Acoustics & Vibration Group, Sacramento, from City of Sacramento, Planning & Building Department, including data from RSW Engineering, Beaverton, OR, January 5, 2001.
10. Bulletin #100-290, "Cleaning of Sheerfill® Architectural Fabric" and Bulletin #101-190, "Mold and Algae Growth on Sheerfill® Architectural Fabric" from ChemFab, Merrimac, NH, provided by K. Chew, City of Sacramento, Planning and Building Department, during a meeting with A. Burke, R. Pendergraft and S. Pettyjohn (TAVG) on January 8, 2001.
11. Telephone conversation with Roger Whitaker of RSW Engineering, Beaverton, OR, Noise Consultant to CH2M-Hill, the City's Contractor for Preparation of the EIR for the Renovation of the Music Circus, January 16, 2001.