

Trauma Center Helicopter Flight Noise Study for the Providence Santa Rosa Memorial Hospital

P R E P A R E D F O R :

Providence Santa Rosa Memorial Hospital

1165 Montgomery Drive

Santa Rosa, CA 95405

P R E P A R E D B Y :

Joel A. Lewitz, PE

134 Spencer Ave.

Sausalito, CA 94965

jlewitz@lewitz.com

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1.0 EXECUTIVE SUMMARY

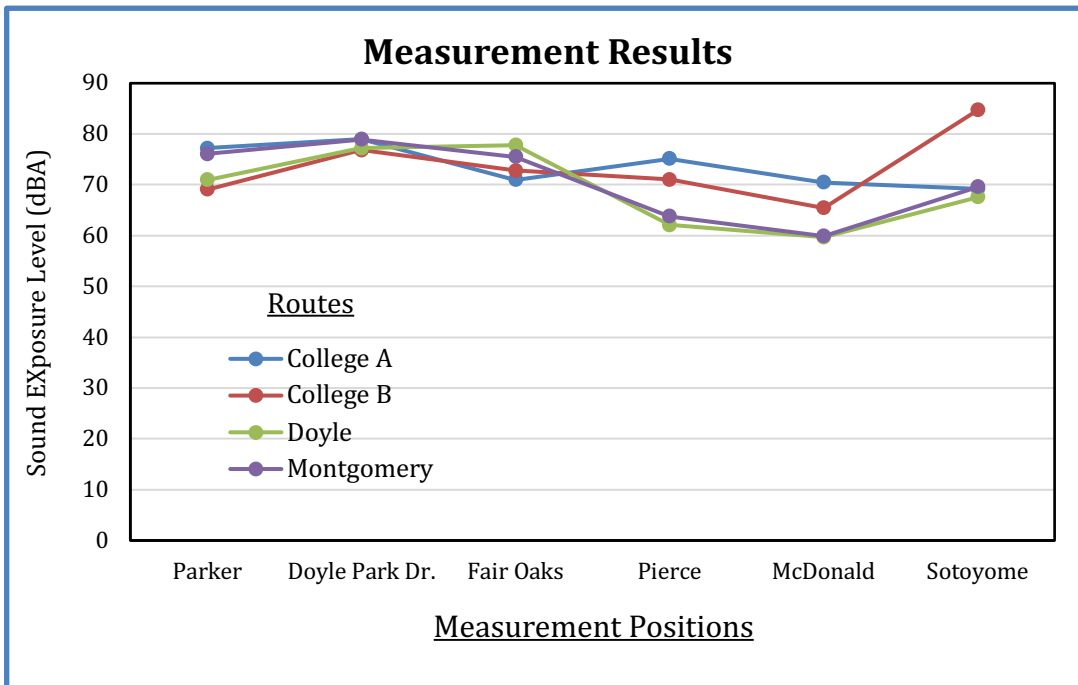
- This report summarizes measurements and analysis used to assess helicopter noise in the vicinity of the Providence Santa Rosa Memorial Hospital (SRMH) from trauma center helicopter flights, currently operated by REACH Air Medical Services (REACH). SRMH is located at 1165 Montgomery Drive in Santa Rosa, California. This study was completed to satisfy Item 5b of the contract detailing requirements for a Level II Trauma Permit in the County of Sonoma, which states:
 - *Hospital agrees to, at its sole expense, and within 18 months of the effective date of this Agreement, deliver to EMS Agency a final completed noise study that (1) evaluates current Caltrans identified helicopter flight paths and at least two alternative paths, and (2) identifies which of the approved or alternative paths generates the least noise for persons residing in the vicinity of the hospital.*
- To assess noise from helicopter operations, four flight paths were evaluated. The route map is shown in Appendix 1.
 - The routes are called:
 - College A
 - College B
 - Doyle
 - Montgomery
 - As shown in Appendix 1, all departures are to the southwest. Only approaches were used for comparing route noise in this study.
 - Flights were recorded at 6 measurement positions surrounding the hospital.
 - This included residential neighborhoods suggested by SRMH neighbors in correspondence or at public meetings.
 - 3 positions north of Santa Rosa Creek and 3 to the south were chosen.
 - The following table describes the 6 measurement positions.
 - Measurement positions are shown in Appendix 2.

Position #	Location	Short name
1	Parker and Doyle Park Drive	Parker
2	435 Doyle Park Drive	Doyle Park Dr.
3	Behind 1224 Fair Oaks	Fair Oaks
4	3 rd and Pierce	Pierce
5	12 th and McDonald	McDonald
6	Sotoyome, near Montgomery	Sotoyome

2.0 MEASUREMENT RESULTS

- The variation in results comparing measured noise levels between the four flight paths revealed that no single route was definitively identifiable as consistently generating the least noise for persons residing in the vicinity of the hospital.
- The conclusions are based on detailed analysis and comparison of data from all flights and routes.
- Measurement results for all 4 routes at each of the 6 measurement positions are presented in Figure 1.
 - The average measured sound exposure level in decibels for each approach route at each measurement position is plotted on the vertical axis.
 - The measurement positions are identified on the horizontal axis.
 - The routes are identified by the colored lines and plotting symbols.
- No single flight path was shown to consistently generate the least noise for persons residing in the vicinity of SRMH.

Figure 1. Summary of measured noise levels for 4 routes.



Summary conclusions can be made from Figure 1 based on the results at each measurement position.

Measurement Position	Summary Conclusion
Parker	College B generates the least noise.
Doyle Park Dr.	All 4 routes generate about the same noise.
Fair Oaks	College A and College B generate the least noise.
Pierce	Doyle and Montgomery generate the least noise.
McDonald	Doyle and Montgomery generate the least noise.
Sotoyome	College A, Doyle and Montgomery generate the least noise.

The data point at the Sotoyome measurement position on the College B route in Figure 1 represents an atypically high sound level when compared to the values at the other measurement positions. This could be the result of an unusually close approach to the hospital directly over the Sotoyome measurement position.

3.0 MEASUREMENT PROCEDURES

Route Selection

- The current routes flown by REACH are College A and College B.
- REACH selected Montgomery and Doyle as alternate routes.
- REACH test flew the Montgomery and Doyle routes so the pilots could confirm the correct altitudes on these approaches.

Flights

REACH conducted a total of 13 trauma flights and non-trauma flights over the existing and alternate routes during the study.

Noise Monitoring

Automated noise monitors were deployed at the 6 measurement positions to assess the helicopter noise. Measurements were taken continuously over a 7-day period between noon, Tuesday, May 30, 2023 and noon, Monday, June 5, 2023. During all readings, weather conditions were good with seasonal temperatures and light wind.

Methodology

The noise monitors logged sound levels at 1-second intervals for the duration of the noise study. REACH was asked to fly each route and provide the date, time and route for each flight conducted during the study. The noise level at each measurement position for each flight and route was identified by matching the time stamp on the graphical time histories with the actual flight times.

Audio recordings were also made to confirm that the recorded event was a helicopter flyover.

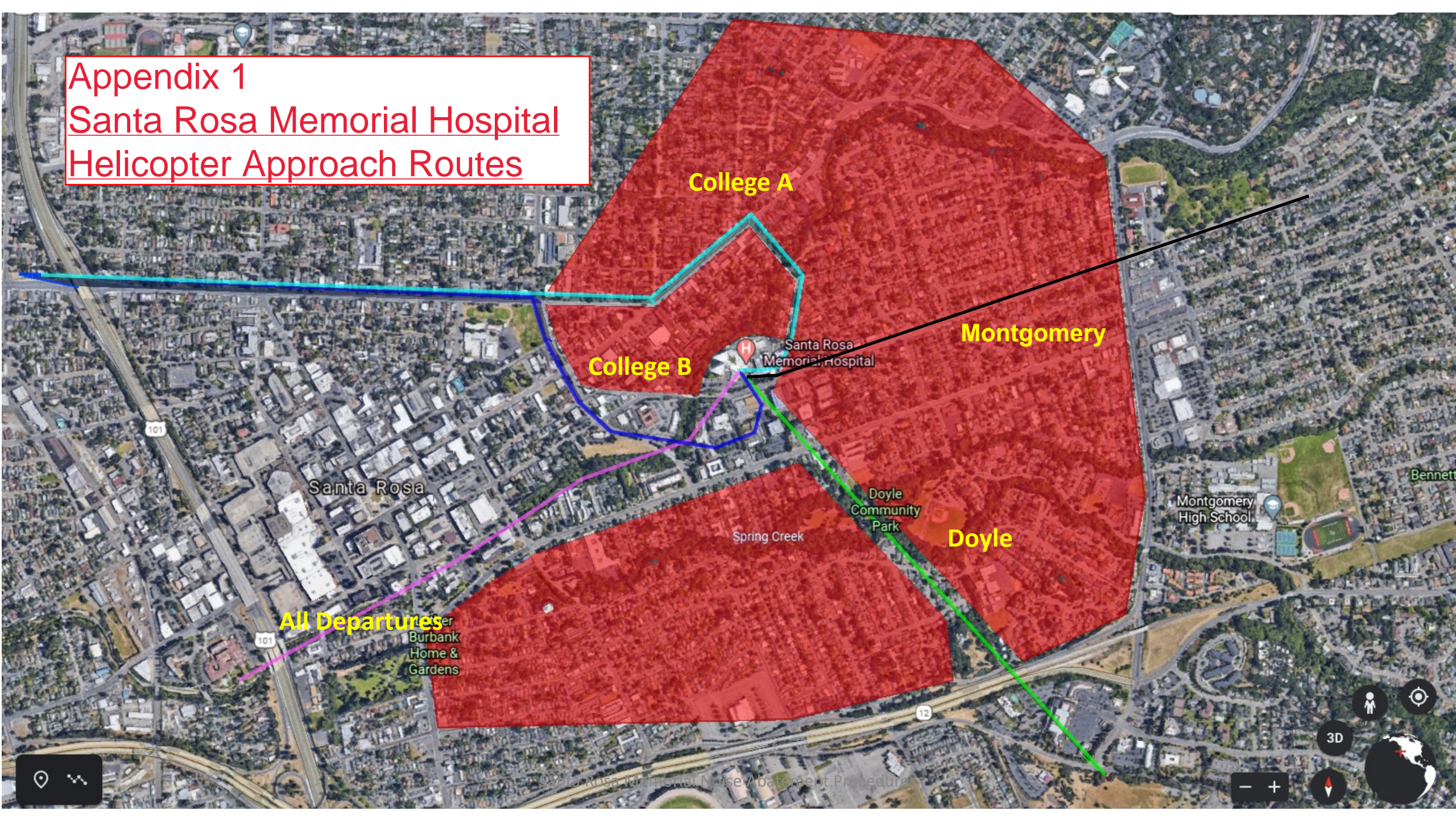
Instrumentation

The noise measurements were taken using ANSI Standard, Type 1 sound level meters fitted with a windscreen. For position 3, the sound level meter was mounted on a tree behind 1224 Fair Oaks approximately 5' above the ground overlooking Santa Rosa Creek. For all other measurement positions, the sound level meter was pole-mounted approximately 12' above the ground. A typical pole-mounted noise monitor deployment is shown in Appendix 3.

4.0 CONCLUSIONS

- As seen in Figure 1, no single approach path consistently generates the least noise in all communities measured.
- The College A route tends to fall across the upper range of the chart in Figure 1, indicating higher noise levels.
- In the majority of neighborhoods, the College B, Doyle and Montgomery routes were shown to generate the least noise for persons residing in the vicinity of the hospital because those routes trend across the lower range of the chart in Figure 1, indicating lower noise levels.

Appendix 1
Santa Rosa Memorial Hospital
Helicopter Approach Routes



College A

College B

Montgomery

Doyle

Santa Rosa Memorial Hospital

Santa Rosa

Spring Creek

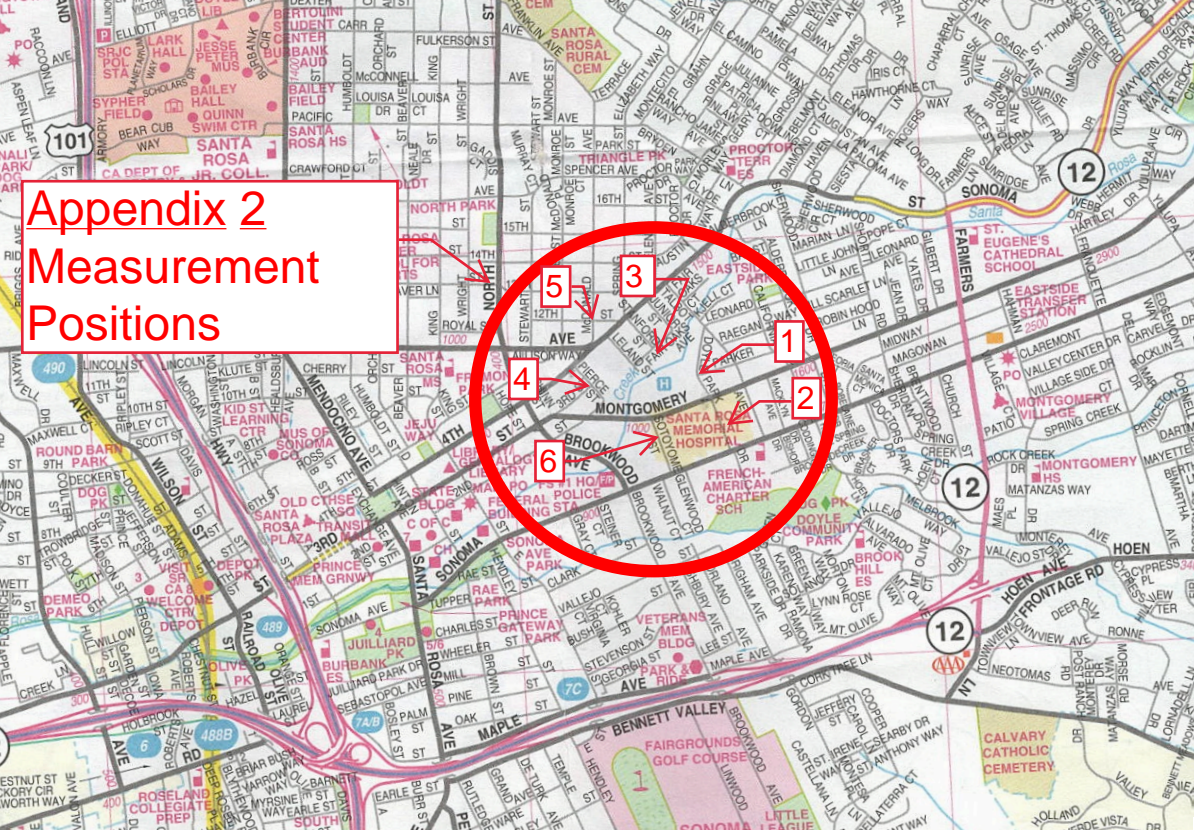
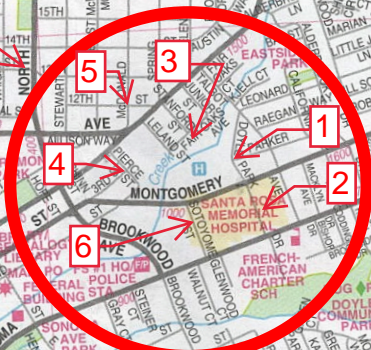
Doyle Community Park

Montgomery High School

All Departures

Burbank Home & Gardens

Appendix 2 Measurement Positions



Position 5
12th and McDonald



Appendix 3:
Typical noise meter
deployment

