

MEMO

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Attention:	Charlotte Day	Cross Reference:			
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From:	Laura McNeill	No. Pages:	3	Attachments:	No
CC:					
Subject:	Cost of Noise Monitoring Terminals				

Introduction

Marshall Day Acoustics (MDA) has been engaged by Auckland International Airport Limited (AIAL) to provide a summary of the costs associated with purchasing, installing and maintaining a noise monitoring terminal as well as the costs of analysing and reporting on noise data from the noise monitoring terminal. It is noted that this memo does not address the costs of the permanent monitoring terminals at the airport which are significantly more expensive due to their permanent nature. The costs quoted are exclusive of GST and are costed for a single noise logger.

Cost of Equipment

A temporary noise monitoring terminal installation generally consists of a sound level meter with a 6m microphone pole and a solar panel and battery box to provide power. This equipment is not proprietary, and its parts are purchased separately and built into a bespoke noise monitoring terminal. Approximate costs of the equipment and labour costs to build the bespoke noise monitoring terminal are:

Noise Monitoring Terminal: \$20,000 + GST
Includes parts and labour (one off cost)

Cost of Installation & Maintenance

Installation of a noise monitoring terminal varies for each site depending on the layout of the site. It is possible, in urban areas to secure the 6m microphone pole to a sturdy fence post or part of a building. In a rural setting, guy ropes may be used to secure the microphone pole.

Installation generally requires two people and it can take between a half and full day to install depending on the specific site conditions and travel time.

The noise monitoring terminal must then be checked and maintained on a regular basis. It is not uncommon for the noise monitoring terminal to require repair after heavy storms. There is also a degree of ‘wear and tear’ due to the noise monitoring terminal being out in the elements and they must be checked every 3-6 months and the SD cards downloaded and replaced. Several times per week the monitoring terminal must be logged into remotely to check they are still running and recording data correctly.

The estimated costs of installing a noise monitoring terminal is given below along with estimated ongoing maintenance costs. This cost does not include the cost of the factory calibration which must occur every two years. This involves retrieving the noise monitoring terminal and redeployment at the site along with costs of the calibration.

Table 1: Cost of Installation and Maintenance

Task	Cost
Installation (one off)	\$2500 + GST
Remote checks (cost per week)	\$350 + GST
On-site checks (cost per quarter)	700 + GST

Cost of Analysis and Reporting

The cost of analysing and reporting results from the noise monitoring terminal varies greatly depending on the data outputs required and the system used to analyse the data. If data from the temporary noise monitoring terminal feeds directly into Casper. Casper then automatically correlates the noise data to an aircraft overflight. For this method the analysis is done automatically through Casper and thus the cost of analysis is absorbed into the purchase price of Casper and ongoing maintenance costs which are borne by the Airport. These costs are not stated here.

If Casper was not used to analyse the data from the noise monitoring terminal (as may occur if residents installed their own noise monitor) the data would have to be analysed manually to extract aircraft noise events and calculate the noise levels. We have just recently completed this process for another large airport in New Zealand where a bespoke program was written to correlate noise data with Airways New Zealand Radar Data provided to us.

With a list of correlated noise events (from Casper or otherwise) a report on the noise levels can be produced. The cost of reporting varies greatly depending on the exact graphs and tables required for a specific report. We have provided an estimated cost of reporting based on the level of data presented at the ANCCG meetings. The estimated costs of analysing the data from the noise monitoring terminal via the two methods discussed (Casper vs bespoke program) are also given below.

Table 2: Cost of Analysis and Reporting

Task	Cost
Analysis via Casper	Included in Casper purchase and ongoing maintenance costs paid by Airport
Analysis via Bespoke Program (one off)	\$10,000 + GST
Reporting (as per ANCCG -Quarterly)	\$2,000 + GST

Conclusions and Total Costs

There are a number of costs associated with purchasing, installing and maintaining a noise monitoring terminal as well as the costs of analysing and reporting on noise data. A summary of these costs is given below broken down into the initial equipment and installation costs and then the costs per quarter of maintenance and reporting.

Table 3: Summary of costs

Task	Cost
Equipment and Installation cost (one off)	\$22,500 + GST (one off cost)
Analysis via Bespoke Program (one off)	\$10,000 + GST
Cost of Maintenance and Reporting (Quarterly)	\$6,900 + GST

Limitations and Assumptions

It is noted that the costs above are based on quotes on specific equipment. There are several providers that could be used to provide equipment and the costs may vary significantly between different providers. Some manufacturers also produce proprietary noise monitoring terminals which will be different to the costs stated above. Marshall Day Acoustics does not have details on the costs of such noise monitoring terminals.

We trust this information is satisfactory. If you have any further questions please do not hesitate to contact us.