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Dubrovnik Airport Strategic Noise Study and Map - EN Summary

Dubrovnik Airport Strategic Noise Map - Assessment Year 2014

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1. SUMMARY

The Dubrovnik Airport Strategic Noise Map Project has been drafted in accordance with Directive 2002/49/EC of the European Parliament and Council relating to the assessment and management of environmental noise, the Noise Protection Act (Official Gazettes 153/13, 55/13 and 30/09) and the Air Traffic Act (Official Gazettes 84/11, 54/13, 127/13 and 92/14), and it evaluated the air traffic noise and industrial facilities at Dubrovnik Airport in the Municipalities of Konavle and Župa Dubrovačka. The Strategic Noise Map was drafted by combining computer modelling of environmental noise and acoustic measurements. For the purposes of air traffic noise analysis around the Dubrovnik Airport the ECAC/CEAC Doc 29 'Standard Method of Computing Noise Contours - Equal Levels - around Civil Airports', while analysis of the aircraft apron used the Standard ISO 9613-2: 'Acoustics - Attenuation of Sound during Propagation Outdoors - Part 2: General Method of Calculation'. An acoustic model was made as part of the computer analysis of environmental noise which includes a series of data describing the topography of the runway (i.e. the coordinates of reference points, elevation, endpoints and width), meteorological conditions and all data from airport schematics. This acoustic model area includes a square area of approximately 20 x 20 km for which a digital terrain model was created including the terrain surfacing and location of buildings with their respective relative height. The air traffic noise analysis included all aircraft operations, which were classified based on the type of operation (arrival/departure), date and time of operation, the destination of departures as well as the types of aircraft involved as defined by the ICAO (International Civil Aviation Organization) and the international aircraft codes which contain information on noise emissions of certain types of aircraft. During 2014 there were a total of 16,367 operations, with an average of approximately 44.8 operations a day. Of this total, approximately 36 operations take place during the day, 6.5 during the evening and 2 during the night. The air traffic data show that 2/3 of operations surpassed the threshold of 12, which in essence describes the shape of the noise contour within the Municipality of Konavle. Unlike any previous project on air traffic noise control, this strategic noise map includes sources which are not covered by the recommended method of calculating air traffic noise, and it is possible that they impact noise level of the closest settlements in the Municipality of Konavle and essentially originate from the aircraft apron. The starting point for analysing the noise impact from the 19 aprons at Dubrovnik Airport was the arrangement of aprons themselves supplemented with the results of acoustical measurements conducted during August/September 2015 of the 10 most common aircrafts which account for 90% of the total number of operations at the Airport.

To estimate the population exposure analysis, data from the Central Bureau of Statistics and the State Geodetic Administration, which is based on the 2011 census, was used. On the basis of this the census districts within the assessed area approximately 16,800 residents in approximately 5,200 houses with approximately 3.2 people per house were included. Following the making and verifying of the acoustic model and the calculation of air

traffic noise levels was carried out using Integrated Noise Model (INM) version v.7.0d (2013-06) Software Package from the Federal Aviation Administration, Office of Environment and Energy (AEE-100). In accordance with legal requirements and good professional practise, air traffic noise indicators L_{night} and L_{den} were used during the analysis and noise was calculated in a grid area of 10 m x 10 m. A noise analysis of the apron was made in an identical manner to assess the importance of aircraft noise emanating from the apron. Results relating to noise exposure of population showed that a population of 1,800 people living in 600 housing units were exposed to 55-59.99 dB(A), noise indicator L_{den} , and approximately 100 people were exposed to 50-54.99 dB(A), noise indicator L_{night} . The existing noise emissions from the apron indicate that around the Airport there is no population that is exposed to noise levels which are considered a possible source of interference for short and long stays. Based on the results of the Strategic Noise Map an analysis of noise and conflicting noise levels identified 5 (five) 'areas of noise control'. During an action planning procedure, the analysis of these areas will be carried out on three levels of activities in order to evaluate the possibilities for implementation of certain activities that would contribute to better environmental noise level controls. Based on this assessment proposed scenarios shall be developed for noise management and these proposed scenarios shall be subject to the Dubrovnik Airport Environmental Noise Management Action Plan.