ATHENS INTERNATIONAL AIRPORT «ELEFTHERIOS VENIZELOS»

2011 STRATEGIC NOISE MAP

(based on 2002/49/EC & JMD 13586/724)

ENGLISH SUMMARY

Appendix VI of JMD 13586/724

JULY 2012

UNIVERSITY OF THESSALY | SCHOOL OF ENGINEERING | DEPARTMENT OF CIVIL ENGINEERING

ΕΡΓΑΣΤΗΡΙΟ ΠΕΡΙΒΑΛΛΟΝΤΙΚΗΣ ΑΚΟΥΣΤΙΚΗΣ ΣΥΓΚΟΙΝΩΝΙΑΚΩΝ ΕΡΓΩΝ

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RCCON

2011 STRATEGIC NOISE MAP
(based on 2002/49/EC & JMD 13586/724)

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1. INTRODUCTION - THE ATHENS INTERNATIONAL AIRPORT «ELEFTHERIOS VENIZELOS»

1.1 General - Geographical Position & Airport Characteristics.

"Athens International Airport S.A. " (AIA) is responsible for the operation, management and development of the new Athens International Airport "Eleftherios Venizelos" at Spata. The airport started its operation immediately after the Hellinikon Airport closure in March 2001. Athens International Airport "Eleftherios Venizelos" is one of the most modern, functional and safest airports in the world with regard to technology and infrastructure, providing security, and an outstanding level of service.

The Athens International Airport is the southern gateway of Europe to the world and one of the biggest infrastructure projects in Greece with a strong enterprising but also social character.

Table 1

Commencement of operation:	March 2001
Runways:	2, approximately 4Km each
Main Terminal Building:	4 levels, 14 passengers' embarkation bridges, 150,000 sqm.
Satellite Terminal Building:	10 gates for passengers embarkation
Aircraft traffic (max capacity):	65 landings and take-offs per hour
Passenger Traffic 2011:	14.4 million passengers
Cargo Traffic 2011:	86,000 tones
Aircraft Traffic 2011:	173,000 movements

The description of the natural and technical – operational characteristics and particularly the General Runway Data of AIA 'Eleftherios Venizelos', which is located 33 km northeast of Syntagma Square in the Centre of Athens, with the Code Name **ICAO: LGAV & IATA: ATH,** is given summarized below. The **Airport's Reference Point** is:

* Geographic latitude: 375612.12 N
* Geographic longitude: 235640.20 E
* Altitude: 94 meters MSL

AIA's runways are defined as follows:

* Runway 03R/21L with length of 4000 meters,
* Runway 03L/21R with length of 3800 meters.

In the framework of implementing the relevant European Directive 2002/49/EC and the relevant Joint Ministerial Decision (JMD) 13856/724-28/3/06, AIA in close collaboration with the Ministry of the Environment, Energy & Climatic Change (YPEKA) and the Hellenic Civil Aviation Authority (HCAA) completed the Strategic Noise Map for 2006 (2006 SNM) and the relevant update of the Noise Action Plan (NAP) for aircraft noise.

In the framework of the 2006 SNM and NAP, the following tasks were completed:

- **Strategic Noise Map 2006**, approved by YPEKA with the relevant (AIA Document Control Number)143695/10-7-2007 decision, which also gave instruction to proceed with the 2nd phase of the project, and
- **Noise Action Plan 2006,** approved by YPEKA with the relevant (AIA DCN) 161088/13-10-2008 decision and transmitted to the EC (AIA DCN 185836/4-3-2011) by the Permanent Representation of Greece to the EU.

According to the relevant legislation, Strategic Noise Maps need to be updated every 5 years, therefore AIA, YPEKA & HCAA finalized the relevant technical specifications for the execution of the SNM 2011 which was awarded - as a research project - to the Laboratory of Environmental Transportation Acoustics (LTEA) of the Dept. of Civil Eng. of the University of Thessaly (Research Committee). The execution of the Strategic Noise Map was based on 2011 data.

Based on the results of the 2011 SNM and the relevant max limits as per the JMD 211773/27-4-2012, the necessity of a new Noise Action Plan will be defined. In this case the relevant technical specifications will be drafted in order to complete the relevant Noise Action Plan study within the legislated timeframe (by 18 July 2013). With this JMD, the management and abatement of environmental noise is expected to be fulfilled according to article 14 of Law 1650/86, and articles 2, 3 and 5 of JMD 13586/724/GGG/384/B/28−3−2006 which implements European Directive 2002/49/EC. The maximum permissible limits for both noise indexes, Lden (24hrs) & Lnight (8hrs), for road, railway & airport environmental noise have been defined as follows :

a. For the noise index L_{den} (24hrs): 70 dB(A)
b. For the noise index L_{night} (8hrs): 60 dB(A)

The present research project concerning the 2011 SNM includes the use of the numerical model CadnaA, aiming at the evaluation of Lden & Lnight relevant environmental noise contours due to air traffic for the year 2011 according to **ECAC.CEAC Doc.29** «Report on Standard Method of Computing Noise Contours around Civil Airports», 1997, as for the 2006 SNM.

1.2 Airport's traffic data and aircraft flight paths.

The relevant analysis was based on the provisions of 2002/49/EC using the actual air traffic data per day/runway/procedure for the year 2011 (with the exception of helicopters, military and other special flights) categorized according to the relevant recommendation of the 6th of August 2003 Committee (2003/613/EC) (see database "AzB-99" «Neue zivile Flugzeugklassen für die Berechnung von Lärmschutzbereichen (Entwurf), Umweltbundesamt, Berlin 1999.)

Table 2

Final distribution of the corrected* air traffic / aircraft category for the total movements for 2006 & 2011

SNM	P1	P 2.1	P 2.2	S 5.1	S 5.2	S 5.3	S 6.1	S 6.2	S 6.3	S 7	TOTAL YEAR
2006	4.805	39.134	399	25.662	97.100	3.953	10.667	176	2.395	303	**184.594**
	2.6%	21.2%	0.2%	13.9%	52.6%	2.1%	5.8%	0.1%	1.3%	0.2%	**100.0%**
2011	1.807	38.284	347	12.963	108.323	496	6.242	366	376	269	**169.473**
	1.1%	22.6%	0.2%	7.6%	63.9%	0.3%	3.7%	0.2%	0.2%	0.2%	**100.0%**

NB * military and other special flights as well as helicopters are not included

According to the above data it is concluded that a significant reduction of total yearly movements is reported between 2006 and 2011 in all categories with the exemption of S5.2 & S6.2. In the table hereafter the comparison of traffic categories between 2006 and 2011 is presented.

Table 3

Comparison of the corrected* air traffic / aircraft category for the total movements for 2006 & 2011

Diff.	P1	P 2.1	P 2.2	S 5.1	S 5.2	S 5.3	S 6.1	S 6.2	S 6.3	S 7	TOTAL
abs	-2,998	-850	-52	-12,699	11,223	-3,457	-4,425	190	-2,019	-34	-15,121
%	-62.4%	-2.2%	-13.0%	-49.5%	11.6%	-87.5%	-41.5%	108.0%	-84.3%	-11.2%	-8.2%

NB * military and other special flights as well as helicopters are not included

The best approach for numerical modelling is the use of the total year traffic volume for 2011 with distribution per runway for the 3 distinct time periods as per 2002/49/EC as well as representative flight paths both horizontally and vertically in an impact area of approximately 20Km^2 taking into account the dispersion as recorded by the airport's radar. In order to access the best corresponding flight paths per runway and landing/take-offs, the density charts from the AIA's Noise Monitoring System (NOMOS) were employed. By detailed evaluation of the recorded flight paths for 2011, the following flight paths were chosen:

- A single flight path per runway/movement type for all runways with the exception of departures from runways 03L & 03R.
- For departures from runways 03L & 03R, two (2) distinct flight paths per runway (on the horizontal level) were employed in order to optimally cover the geographical area in which the departures are dispersed.

The selection of 2 distinct flight paths for departures from runway 03R instead of 3 flight paths as per the 2006 SNM was deemed necessary due to changes in the flight dispersion 2006 and 2011 derived from actual radar data. In order to verify the representativeness of the chosen flight paths for 2011, a parametric statistical analysis was performed including numerical calculation of both noise indices for all NOMOS measurement locations including a comparison of the theoretical results with the actual recorded noise levels for the same period (2011). The statistical comparison was successful, providing correlation coefficients (R^2) of 0.8 and 0.84 for L_{den} & L_{night} respectively. For the longitudinal profiles, the relevant SNM 2006 assumption was implemented according to:

- Longitudinal profile for departures for all aircraft categories for ECAC 29 according to "AzB-99" (in accordance with Neue zivile Flugzeugklassen für die Berechnung von Lärmschutzbereichen (Entwurf), Umweltbundesamt, Berlin 1999),
- Longitudinal profile for arrivals for all aircraft categories according to AIP GREECE - ILS 03L/21R and 03R/21L enforced throughout 2011.

The compatibility of the geographical distribution based on data from the estimated representative average day is totally representative for the year 2011 as indicated in the following figures.

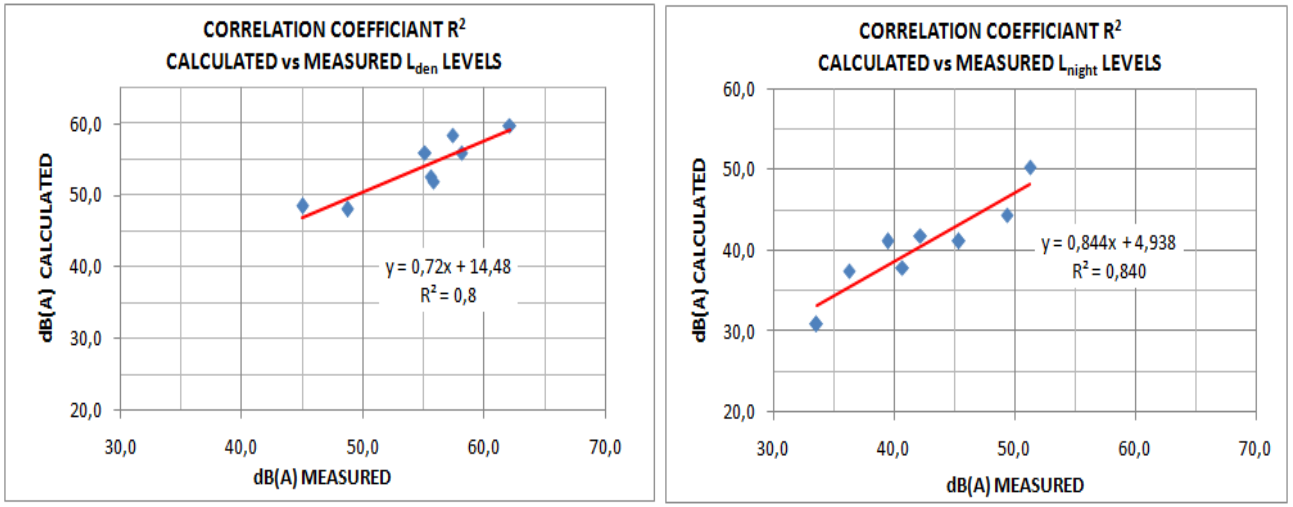

Figure 1

2. STUDY AREA : LAND USE – POPULATION DATA

Taking into account the needs of the 2011 SNM within the immediate and greater area of AIA 'Eleftherios Venizelos', a three-dimensional model of the greater Mesogaia area was formed with the use of a Geographical Information System with the minimum geographical unity at the level of blocks of residences. The limits of the study area concern a zone upwind and downwind of the airport's runways, the limits of which were defined taking into account the preliminary effects of aircraft noise as presented in Figure 1.

More specifically, the corresponding areas of each municipality in the study area (there has been an estimation of the urban-suburban and sheer rural areas) are presented in the table below (with reference to the distribution of municipalities prior to the recent "KALLIKRATIS" initiative which redefined the boundaries of several municipalities).

Table 4

A/A	*MUNICIPALITY (according to the recent KALLIKRATIS initiative)*	*MUNICIPALITY*	*WITHIN STUDY AREA (stremas)*	*URBAN-SEMI URBAN (est. stremas)*	*AGRICULTURAL AREA (est. stremas)*
1	SPATA-ARTEMIS	SPATA	45,750	9,000	36,750
2		ARTEMIDA	21,915	19,170	2,745
3	MARATHON	NEA MAKRI	1,360	1,160	200
4	RAFINA-PIKERMI	RAFINA	15,420	11,060	4,360
5		PIKERMI	3,200	530	2,670
6	PEANIA	PEANIA	15,870	870	15,000
7	KROPIA	-	39,820, *	33,070 *	16,750
8	MARKOPOULOS	-	33,950	6,000	27,950
ΣΥΝΟΛΟ			177,285	80,860	106,425

* including 'Kitsi' settlement

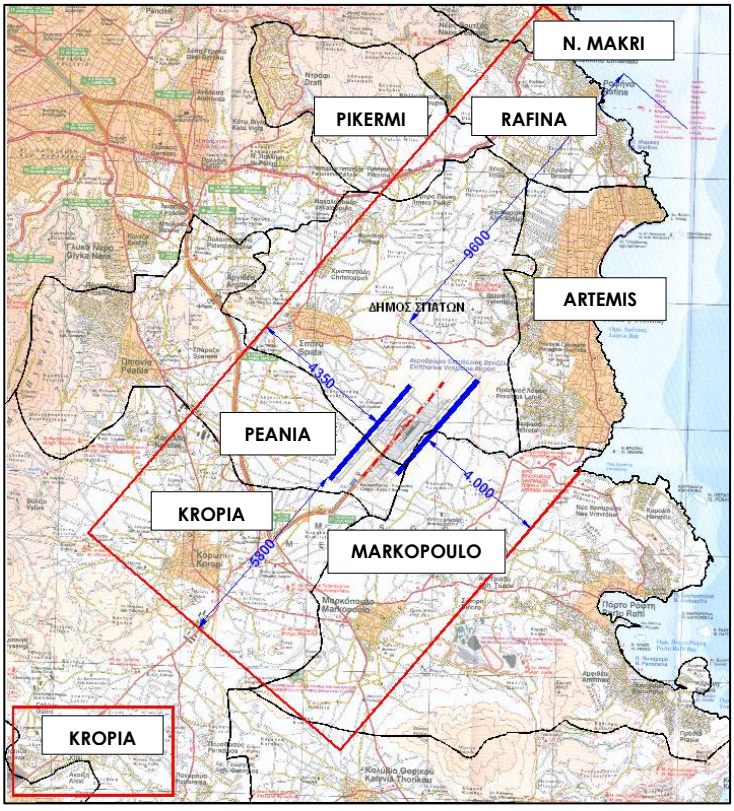

Figure 2
Study Area

In the framework of the research for the institutionalized town planning zones (boundaries of general town planning, "Residential Control Zones", approved land use & settlement boundaries, protected area boundaries, etc.) of the greater Mesogaia area, all the standing decrees and decisions as well as the corresponding maps were collected from the relevant town planning authorities of the Prefecture of East Attiki and the Technical Services authorities of the relevant municipalities. The noise "sensitive" types of land use (schools, churches, health centres, etc.), were recorded and were depicted in inventory

maps. More specifically, 146 updated locations of "sensitive" types of land use, grouped in six categories, were detected and inserted at the relevant geographic thematic level:

- Churches
- Schools (primary, secondary and tertiary)
- Community centres
- Health centres
- Nursery schools
- Camps

The statistical data which was taken into account for the needs of the present study and comprises the basic material from which the statistic tables have been derived in both the long term and short term, is **population data (collected every decade) per block of residencies** at the settlement level of all municipalities and communities within the study area. In order for the population to correspond to the block of residencies of the affected residential areas, **maps from the Geographic Data Base of the Hellenic Statistical Authority (El. Stat.) Geographic Information System** (diagrams of 1:5,000 scale) were used. The composition of the map has been constructed through the use of photogrammetric methods from recent aerial photos (1997 and later) using Greek cadastre coordinates ('87). The population data per municipality or community, municipal or communal province and settlement of the study area, including the indications and geographic codes that El. Stat. uses, includes the real population as well as the resident population.

It must be noted that according to the relevant correspondence between AIA and the El. Stat., data from the most recent (2011) census are expected to be available by the end of 2012 - beginning of 2013. Therefore the data from the 2001 census have been used for the 2011 SNM , which will be updated when the new data become available.

3. EXISTING ACTION PLAN FOR AIRCRAFT NOISE AT THE AIA.

AIA in cooperation with the Hellenic Civil Aviation Authority has developed an **Action Plan** for Aircraft Noise and its proposed actions are described below.

- **Noise Abatement Procedures:** The Noise Abatement Procedures have been established prior to the operation of the airport in cooperation with the Hellenic Civil Aviation Authority. The procedures have been published in the AIP Greece, Volume I and include measures concerning runway use including restrictions during the night, the aircraft engine testing and Auxiliary Power Unit (APU) usage. In particular, the Noise Abatement Procedures include:

USE OF RUNWAYS

- Runway 21L is not to be used for landings during the night (11pm – 7am)
- Runway 03R is not to be used for departures during the night (11pm – 7am)
- Chapter 2 aircraft licensed to use the airport cannot use runway 03R for take-offs or runway 03L for landings on a 24-hr basis.
- In addition, the following marginally accepted Chapter 3 aircraft are not allowed to use runway 03R for take-offs or runway 21L for landings (**implemented in April 2010 for 03R and December 2011 for 21L**) on a 24-hr basis.

Antonov An 24	McDonell Douglas DC-10
BAC 1 11-200/400	Ilyushin 62
Boeing B707	Ilyushin 76/ IL 78-82
Boeing B727	Ilyushin 96
Boeing B737 200	Lockheed Tristar L1011
Boeing B747 200/300	Tupolev Tu 134A
British Aerospace BAE-125-1000	Tupolev Tu 154M
McDonell Douglas DC-8	Yakovlev YAK-40
McDonell Douglas DC-9	Yakovlev YAK-42

- ✔ All military aircraft are not allowed to use runway 03R for departures or runway21L for landings on a 24-hr basis (**implemented for 03R in April 2012 and 21L in December 2011**). Military aircraft of civil aircraft type not included in the above table– are excluded from this restriction.
- ✔ Deviations of the above may be allowed for security reasons during extreme meteorological phenomena or when capacity and operational procedures are necessary.

REVERSE THRUST USE

Use only under safety procedures in force.

THRUST REDUCTION – ACCELERATION, RUNWAYS 03L AND 03R

Unless necessary for safety reasons, all turbo-prop and jet-powered aircraft shall not reduce take-off thrust until a minimum altitude of 1800 feet MSL has been reached and shall not accelerate above initial climb speed (V2+10) or change take-off flap and slat configuration until a minimum altitude of 3300 feet MSL has been reached.

OTHER PROCEDURES

Restriction of take-offs from runway 03R and restriction of landings on runway 21L are also enforced from 15:00 to 18:00 through temporary NOTAMs which are renewed upon expiration.

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XYA0546
GG ENHBZEZN ENZZNESI
251157 LGGGYNYX
(A0157/06 NOTAMN
Q) LGGG/QFAXX/IV/NBO/A/000/999/3756N02357E005
A) LGAV
B) 0602010001  C) 0603252359
E) REF AIP GREECE VOL I AGA 2-3-15 PARA 4 (RUNWAY USE) ADDITIONAL
HOURS OF LGAV-NOISE ABATEMENT PROCEDURES FROM FEB 01 TIL MARCH 25
DAILY 1300-1600)

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Following collaboration with the Hellenic Civil Aviation Authority, representatives of airlines (pilots) and also the Municipality of Artemis, two (2) new take-off procedures (SIDs) were assessed for the runway 03R i.e.: (a) runway heading after take-off and then left turn at 12DME and (b) displacement of turn as instructed until now from 1100 feet to 3000 feet or at 10DME. Both procedures are in addition to the existing SIDs still in use (valid since August 2010).

- ➲ **AIA's Noise Monitoring System:** AIA "Eleftherios Venizelos" is the only airport in Greece that operates a permanent Noise Monitoring System (NOMOS). The monitoring of the noise intensity level in the broader area of the airport as well as the instant correlation of the noise levels with specific aircraft traffic is achieved with

NOMOS. The monitoring system is composed of a network of ten (10) permanent Noise Monitoring Terminals (NMTs), a mobile station and a central unit with software for the collection, processing and storage of data and includes a connection with the Hellenic Civil Aviation Authority's radar to obtain data about aircraft flight paths, the Airport Operation Data Base (AODB) for data about the flight plan, as well as a connection with AIA's Air Quality Monitoring Network for meteorological data. An automatic correlation of noise levels with particular aircraft movements based on the minimum distance of the aircraft flight path from each station is accomplished with NOMOS. The measurement data are used to evaluate the consequences of aircraft movements upon noise levels in the vicinity of the airport, the monitoring of the compliance with the Noise Abatement Procedures, the investigation of public complaints and planning in general. The system uses a large number of indicators for the description of the acoustic environment (L_{den}, L_{night}, L_{max}, L_{day}, $L_{evening}$,, etc).

- **Chapter 2 aircraft ban :** The ban of Chapter 2 aircraft is in effect since the end of 2002. The withdrawal of these aircraft, which represented approximately 12% of the overall movements in AIA prior to the ban, has played an important role in reducing noise levels according to the results of AIA's Noise Monitoring System.
- **Noise Complaint Management System :** AIA has created a special "We Listen" telephone **line** which concerned citizens can call for information and to register their complaints. The telephone line operates on a 24-hour basis. The public may also submit noise-related comments via a special page on the AIA's website (www.aia.gr).
- **Reports – Data for the public :** Reports based on the results of the implementation of the Action Plan are submitted to the relevant authorities (e.g. Ministry of the Environment, Hellenic Civil Aviation Authority) on a weekly, monthly and a six-monthly basis. At the same time, information about noise and measurement results is given to the local community through the annual publication of AIA's Environmental Services Department entitled *Care for the Environment*

4. PREDICTION METHODOLOGY – SIMULATION MODEL CADNAA.

The guidelines concerning the revised interim computation methods mentioned in point 2.2 of Annex II of the European Directive 2002/49/EC and the emission data for aircraft noise based on the existing data are mentioned in the annex of the **COMMISSION RECOMMENDATION OF 6 AUGUST 2003 (2003/613/EC) concerning the "Guidelines on the revised interim computation methods for industrial noise, aircraft noise, road traffic noise and railway noise, and related emission data"** (notified under document number C(2003) 2807). According to Article 6 and Annex II of Directive 2002/49/EC, the interim computation methods for the determination of the common indicators Lden and Lnight for aircraft noise are recommended for Member States that have no national computation method or Member States that wish to change computation methods.

The method applied for aircraft noise is that of ECAC.CEAC Doc. 29 "Report on Standard Method of Computing Noise Contours around Civil Airports", 1997. For the needs of the present study **CadnaA** software was used, which completely ensures the demands of the above report "ECAC.CEACDoc29" are met. The main advantages of CadnaA are:

- Detailed analysis of the results.
- The possibility of creating all kinds of objects using the interface of the program.

* The use of the most recent international standards (e.g. ISO).
* The possibility of 3D mapping of all data, including the subject moving through a virtual background and the its prese
* ntation and storage in video format.

5. PRESENTATION OF THE RESULTS FROM THE AIRCRAFT NOISE SIMULATION MODEL: 2011 SNM.

5.1 2011 Strategic Noise Map

In the relevant annex which follows, the presentation of the 2011 Strategic Noise Map (SNM) based on ECAC.CEACDoc.29 is given for the noise indicators Lden & Lnight having a digital satellite image as a background layer in accordance with the results of the special aircraft noise computation software CadnaA. It must be noted that according to the relevant JMD 13586/724, its IV annex and European Directive 2002/49/EC, the 55 and 65 dB noise contours must be included in one or more of the maps where information for the geographic location of villages, settlements, cities, and towns within these contours is presented.

5.2 Presentation of the results of the study area surface and the number of people exposed to the airport noise buffer zones.

The surface data exposed to the different noise zones of the L_{den} and L_{night} indices of the study area must be categorised – according to the aforementioned institutional framework – in noise buffer zones higher than 55, 65 and 75 dB respectively and at a height of four meters above the ground.

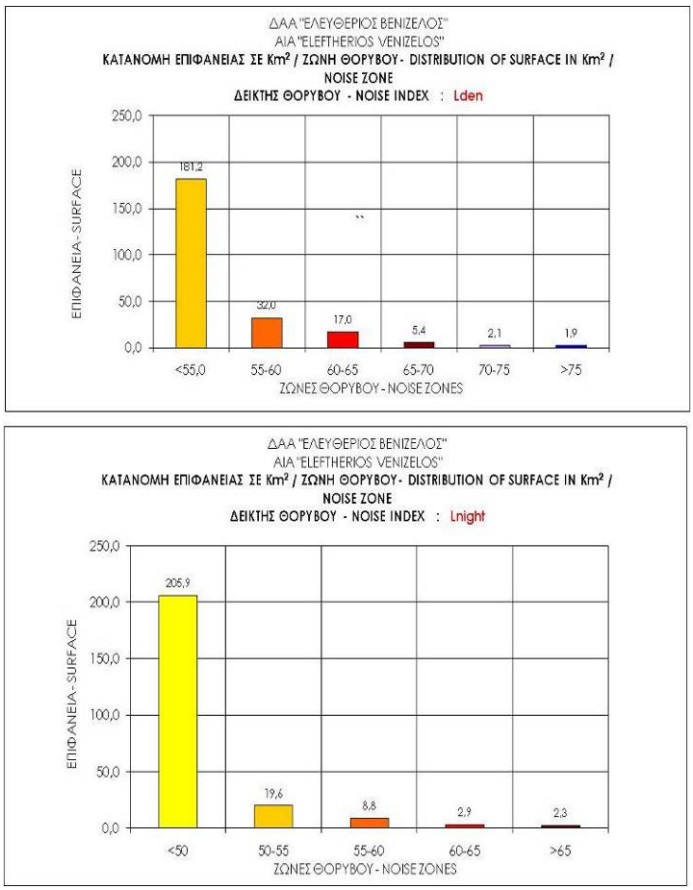

Figure 3
Athens International Airport Eleftherios Venizelos: Graphical distribution of the surface of the study area in noise zones of noise indicator L_{den} and L_{night} for 2011.

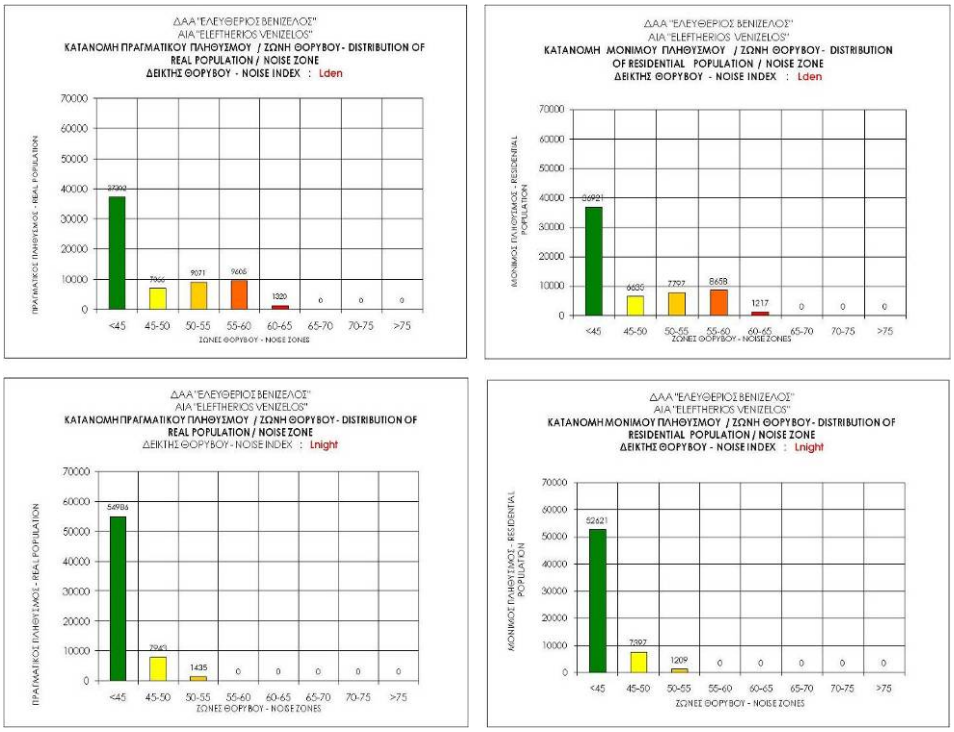

Figure 4
Athens International Airport Eleftherios Venizelos: Graphical distribution of the real & residential population in the study area in noise zones for the noise indicators L_{den} & L_{night} for 2011.

Additionally, the surface area included in each noise zone for L_{den} and l_{night} for the 2011 SNM is presented in the following table. Regarding compliance with the legislated noise limits, it is clear that the areas included within the noise contours of both L_{den} > 70 dB(A) and L_{night} > 60 dB(A) are comprised of mainly the airport property and do not include any residential building blocks.

Table 5
Distribution of surface area in the immediate and greater airport area in the L_{den} & L_{night} noise zones – SNM 2011

NOISE ZONE		**DISTRIBUTION OF SURFACE AREA IN NOISE ZONES FOR L_{den}**
from	to	(in Km^2)
55	60	**32,0**
60	65	**17,0**
65	70	**5,4**
70	75	**2,1**
	>75	**1,9**

NOISE ZONE		**DISTRIBUTION OF SURFACE AREA IN NOISE ZONES FOR L_{night}**
from	to	(in Km^2)
50	55	**19,6**
55	60	**8,8**
60	65	**2,9**
	>65	**2,3**

The assessment of real population exposure in each noise zone for L_{den} and L_{night} for the 2011 SNM is presented in the following table. With reference to the noise zones defined by the noise limits, it is evident that there is no registered population included within both the noise contours L_{den} > 70 dB(A) and L_{night} > 60 dB(A) taking into account that, as indicated above, these areas are comprised of mainly the airport property and do not include any residential building blocks.

Table 6
Distribution of **real** population in the immediate and greater airport area in the L_{den} & L_{night} noise zones -SNM 2011

NOISE ZONE		**DISTRIBUTION OF REAL POPULATION IN NOISE ZONES FOR L_{den}**	
from	To	**No of residents**	**No of residents in hundreds**
55	60	**9.605**	**96**
60	65	**1.320**	**13**
65	70	**0**	**0**
70	75	**0**	**0**
	>75	**0**	**0**

NOISE ZONE		**DISTRIBUTION OF REAL POPULATION IN NOISE ZONES FOR L_{night}**	
from	to	**No of residents**	**No of residents in hundreds**
50	55	**1435**	**14**
55	60	**0**	**0**
60	65	**0**	**0**
	>65	**0**	**0**

5.3. Noise sensitive receptors within the immediate and greater area of AIA.

Following the relative analysis of exposure of the population in the buffer zones of aircraft noise indicators L_{den} & L_{night} for the year 2006 having in mind the in situ building blocks survey and types of land use, 146 updated discrete sensitive receptors locations were identified with an emphasis on health, education, churches, activities of public interest etc. (including 4 additional receptors in comparison to 2006, namely newly established kindergartens).

The following figure shows the graphic presentation of the distribution of the exposed receptors within the buffer zones of noise indicators.

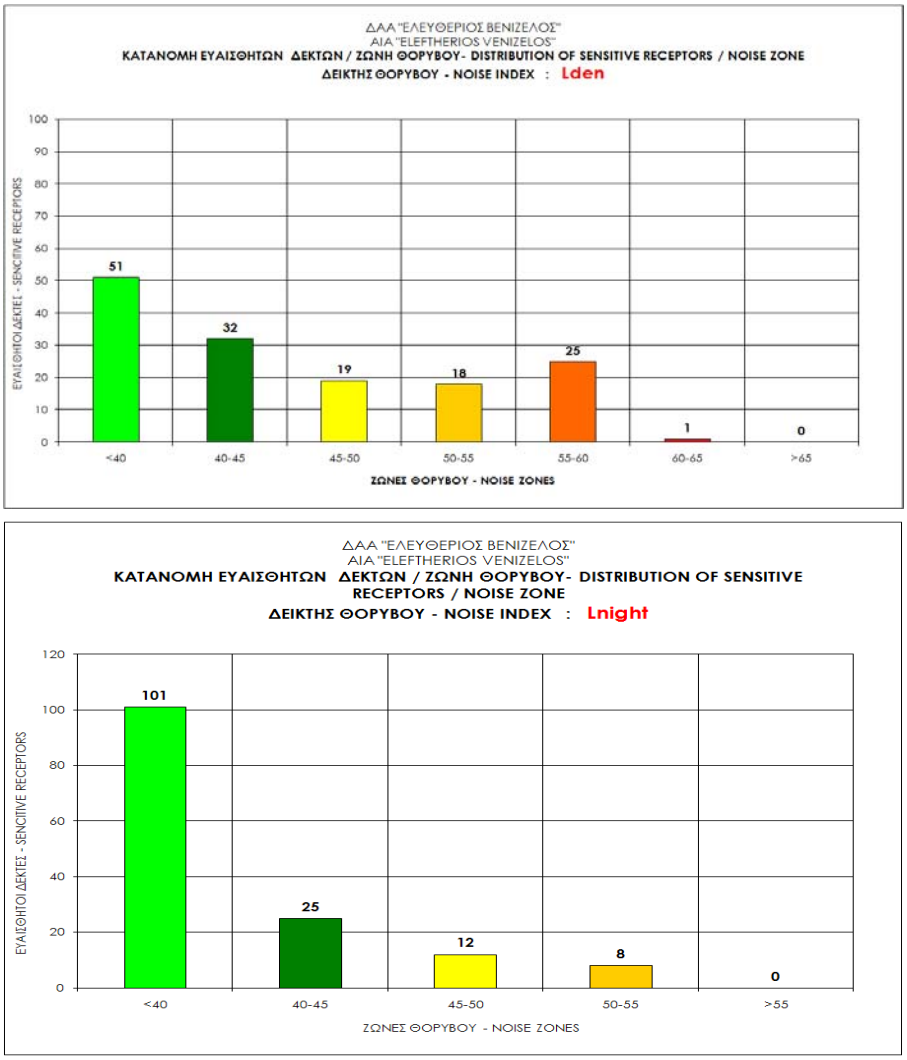

Figure 5

Athens International Airport Eleftherios Venizelos: Graphical distribution of the noise sensitive receptors in the study area in the noise zones for the noise indicators L_{den} & L_{night} for the year 2011.

6. CONCLUSIONS - COMPARISON SNM 2006-2011

Based on the comparison of both the 2006 and 2011 SNMs, it is concluded that the decrease of the total yearly aircraft movements has had a positive effect in reducing noise levels around the airport and complying with the new environmental noise limits (as per the JMD 211773/27-4-2012): $L_{den} \leq 70dB(A)$ and $L_{night} \leq 60dB(A)$ are practically contained within the airport boundaries with no adverse effect on the adjacent urban areas or sensitive receptors. This improvement is not offset by the limited increase in aircraft movements in categories S5.2 and S6.2 since these departures take place outside evening and night hours.

The relevant results of the 2011 SNM 2011 when compared to the 2006 SNM and noise limits as per the aforementioned JMD are fully met (see Figure 6), therefore the existing Noise Action Plan **is deemed effective and no changes or updates are required at the present time.**

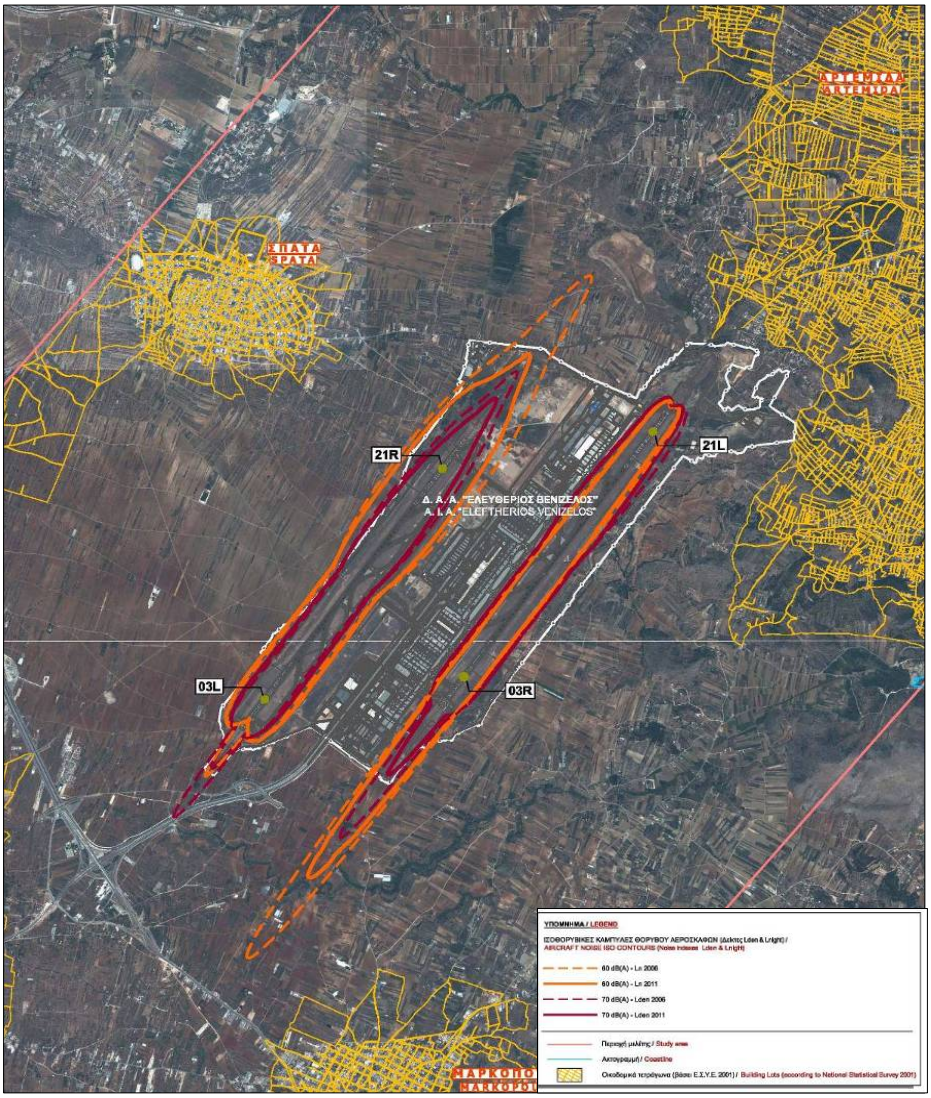

Figure 6 : Comparison of noise contours of max limits for noise indexes L_{den} & L_{night} according to JMD 211773/27-4-2012 between 2006 and 2011 (MAP AIA-GEN-_VN_SNM07-01)

Athens, July 2012
For the

UNIVERSITY OF THESSALY | DEPARTMENT OF CIVIL ENGINEERING

Dr. Konstantinos **VOGIATZIS**
Ass. Professor University of Thessaly

APPENDIX : MAPS - DRAWINGS

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1	2011 STRATEGIC NOISE MAP NOISE INDEX: **Lden**	SATELLITE	AIA-GEN-_VN_SNM01-01	ΣΧΘ-1
2	2011 STRATEGIC NOISE MAP NOISE INDEX: **Lnight**	SATELLITE	AIA-GEN-_VN_SNM02-01	ΣΧΘ-2
3	COMPARISON OF **Lden & Lnight** NOISE INDICES LIMITS FOR **2006 & 2011** SNMs	SATELLITE	AIA-GEN-_VN_SNM07-01	ΣΧΘ-7