

ENVIRONMENTAL BULLETIN OF THESSALONIKI “MAKEDONIA” AIRPORT (SKG)

Reference year 2022

Fraport Regional Airports of Greece A S.A.

Issue year: 2023

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1. INTRODUCTION

1.1. Location

“Makedonia” airport of Thessaloniki (SKG) is located in the coastal area of Mikra, to the south east, and at a distance of 16 Km from the centre of the city of Thessaloniki. It is 2 km away from the old National Road Thessaloniki - Chalkidiki, in the broader area that is known as “Livadi”. The airport occupies approximately 1408 acres (5,700 stremmas) and is surrounded to the north-east by the Anthemoundas stream, to the south - south east by the National Road Thessaloniki - Michaniona, to the west - south west by areas of rural and semi-urban use and finally to the north - north west by the sea.

1.2. Administration

The airport administratively belongs to the Municipality of Thermi of the Regional Unit of Thessaloniki and more specifically to the community of Neo Rysio of the Department of Thessaloniki.

1.3. Environmental licensing

| Approved Environmental Terms | |
|---|-----------------------|
| E.T. Decision Reference number | 105214/17.11.2000 |
| E.T. Amendment Decision Reference Number | 125887/08.05.2007 |
| | 204012/05.10.2011 |
| | 12763/10.03.2016 |
| | 9322/9.05.2018 |
| | 80002/5297/30.08.2021 |

1.4. Airport Basic Data

| | |
|---|---|
| Airport name IATA / ICAO | SKG / LGTS |
| Airport location – Airport Reference Point (ARP) | Latitude: 40° 31' 11" N Longitude: 22° 58' 15" E |
| Altitude | 7m |
| Number of runways | 2 |
| Operation hours (summer & winter) | 0:01-24:00 |

| Runways | Length/Width | | | Code | |
|---------------------------------|------------------------------------|---|----|-------|---|
| Runway | 3,440 m x 50 m | | | 10/28 | |
| Runway | 2,410 m x 60 m | | | 16/34 | |
| Full length of parallel taxiway | (ALPHA) 2,410 m, (FOXTROT) 2,440 m | | | | |
| Number of taxiways | 12 | | | | |
| Apron capacity | A | B | C | D | E |
| | - | - | 16 | 2 | 1 |

| Employees | High season (31.08.2022) | Low season (30.11.2022) |
|-------------------------------|-------------------------------------|------------------------------------|
| Fraport Greece (FG) employees | 96 | 95 |
| Employees of other companies | 3.115 | 2.390 |

| Terminal | |
|--------------------------------|--------|
| ➤ Total area (m ²) | 60.680 |

| Other buildings and service/storage areas | |
|--|-------|
| ➤ RFF Station (m ²) | 1.470 |

| Parking Areas | |
|----------------------|-------|
| Car parking spaces | 2.062 |
| Bus parking spaces | 107 |
| Taxi parking spaces | 185 |

1.5. Airport facilities

1.5.1. Fuel Handlers

| Number of fuel handler companies | |
|---|---|
| Number of fuel handler companies operating at the Airport | 3 |

| Installations inside the airport | EKO | GISSCO | HAFCO |
|---|------------|---------------|--------------|
| Environmental Management System (EMS) | YES | YES | YES |

1.5.2. Ground Handlers

| Number of ground handler companies | |
|---|---|
| Number of ground handler companies operating at the Airport | 3 |

| Installations inside the airport | SKYSERV | SWISSPORT | GOLDAIR |
|---|----------------|------------------|----------------|
| Environmental Management System (EMS) | YES | YES | YES |

2. TRAFFIC DATA STATISTICS

2.1. Annual Traffic Data

| Annual Traffic Data for the year 2022 | |
|--|-----------|
| Overall Annual Air Traffic Movements ¹ | 37.225 |
| Percent of increase or decrease in relation to the previous year | 49,1 % |
| Annual passenger traffic | 3.449.658 |
| Percent of increase or decrease in relation to the previous year | 48,9 % |
| Annual cargo transferred (tn) | 4.386 |
| Percent of increase or decrease in relation to the previous year | 10,4% |

| Aircraft types | |
|--|-----------------------|
| Prevailing aircraft types for domestic flights | |
| Aircraft type | No. of flights |
| A20N | 6.850 |
| A320 | 3.780 |
| AT76 | 2.017 |
| AT72 | 966 |
| DH8D | 789 |
| A32A | 712 |
| B73H | 609 |
| E120 | 496 |
| SW4 | 398 |
| AT75 | 288 |
| Other | 2.226 |
| Prevailing aircraft types for international flights | |
| Aircraft type | No. of flights |
| A320 | 7.810 |
| B73H | 6.641 |
| B738 | 3.557 |
| A32A | 1.874 |
| A319 | 1.527 |
| 7M8 | 984 |
| A21N | 931 |
| A321 | 902 |
| A20N | 837 |
| 223 | 566 |
| Other | 4.259 |

¹ Military and training flights not included.

2.2. High season traffic data

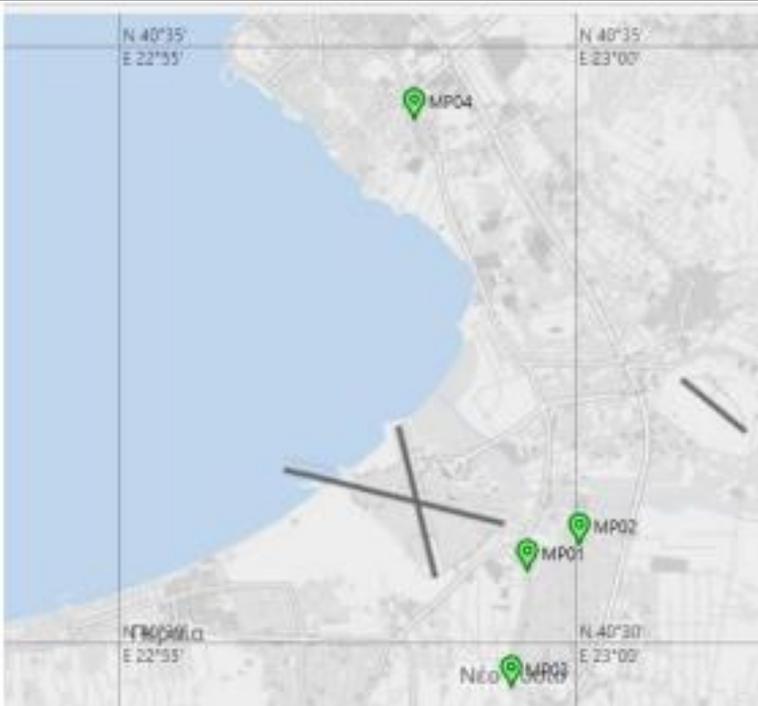
| High season traffic data (June-September) | |
|--|--------|
| Highest traffic month | August |
| Air traffic movements during the month with highest traffic | 5.965 |
| Air traffic movements daily average number during the month with highest traffic | 192 |

2.3. Low season traffic data

| Low season traffic data (October-May) | |
|---|----------|
| Lowest traffic month | February |
| Air traffic movements during the month with lowest traffic | 2.306 |
| Air traffic movements daily average number during the month with lowest traffic | 82 |

3. AIRCRAFT NOISE

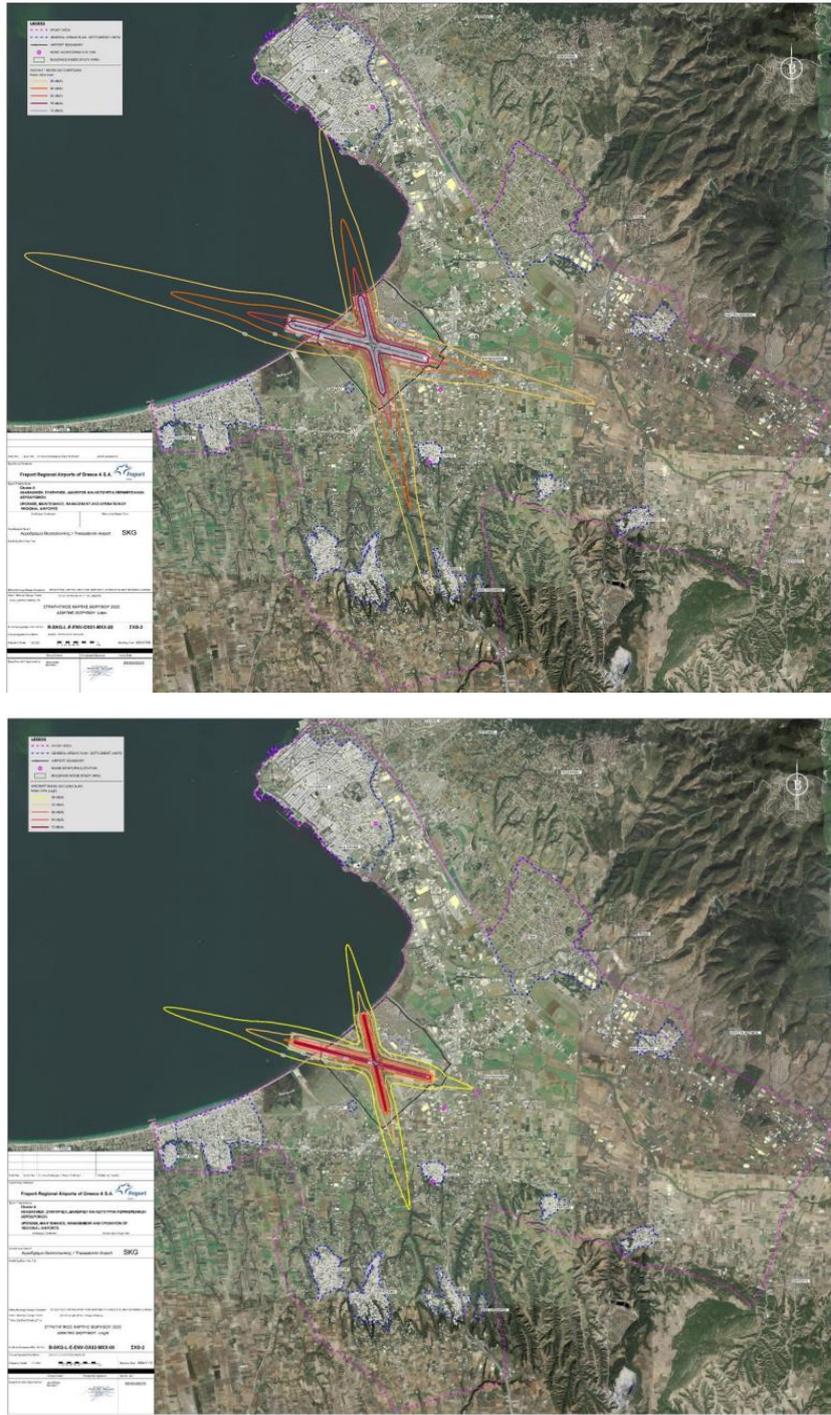
3.1. Noise measurements during the reference year

| Have noise measurements at the airport's surrounding area been performed during the reference year? | | YES |
|---|---------------------------------------|-----|
| Noise Monitoring Stations | | |
|  | | |
| Measurement points coordinates | Measurement points description | |
| MP01: 40° 30' 35.51" N 22° 59' 27.86" E | Gym Hall Neo Rysio area | |
| MP02: 40° 51' 54.10" N 23° 00' 5.48" E | Skafotechniki | |
| MP03: 40° 29' 37.10" N 22° 59' 17.32" E | Cultural center Neo Rysio area | |
| MP04: 40° 34' 22.18" N 22° 58' 13.57" E | 01.01.2022 – 31.12.2022 | |
| Measurement period | 01.01.2022 – 31.12.2022 | |
| Noise indicators | L _{den} , L _{night} | |

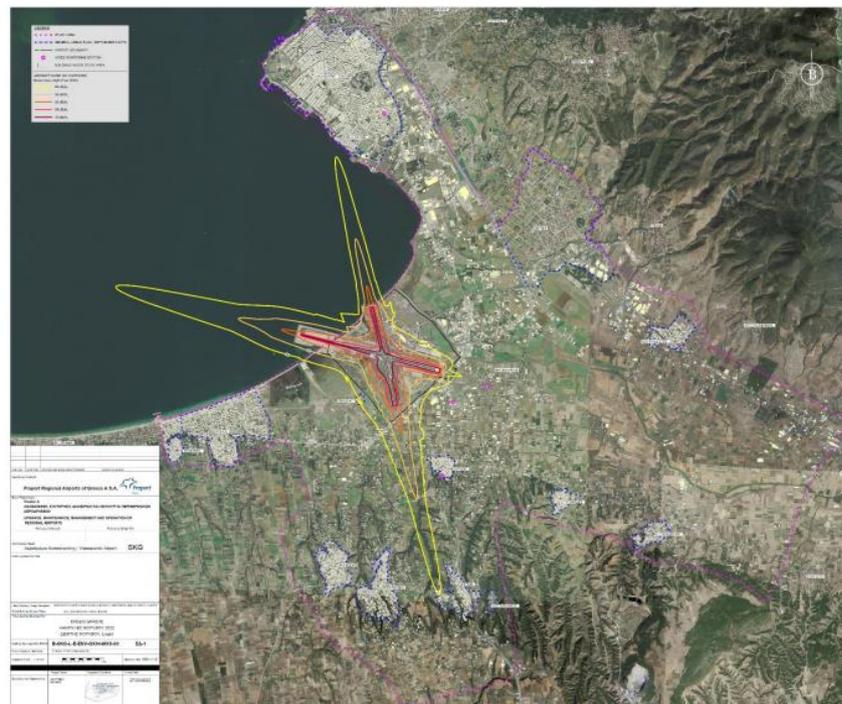
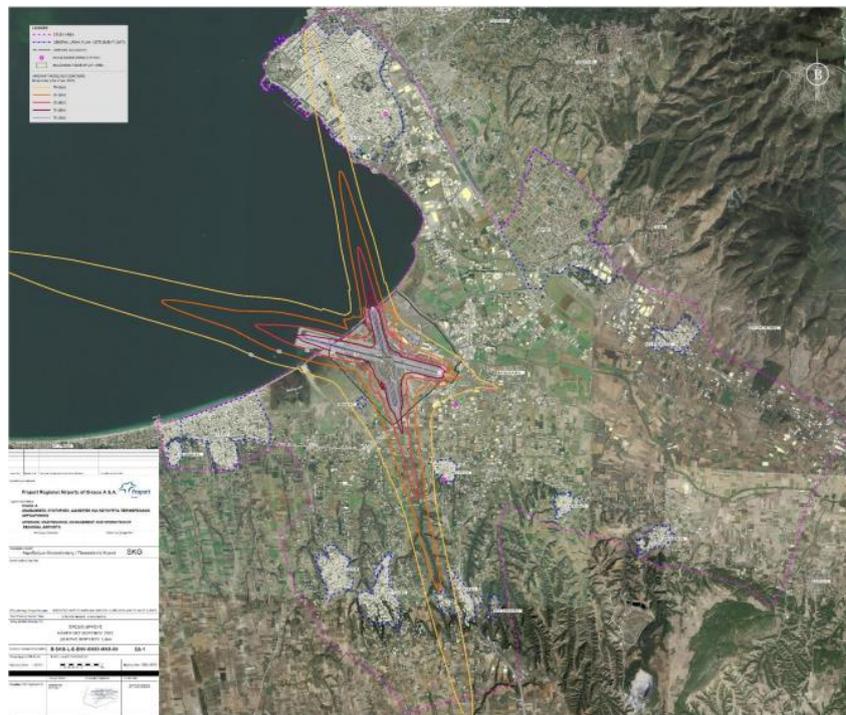
Summary of measurement results:

Noise levels are monitored according to the airport's monitoring program.
 No exceedance of the noise indicators levels L_{den}=70 dB (A) and L_{night}=60 dB (A) was observed.
 MP01: L_{den}=53,7 dB(A) & L_{night}=45,4 dB(A)
 MP02: L_{den}=53,5 dB(A) & L_{night}=43,3 dB(A)
 MP03: L_{den}=49,1 dB(A) & L_{night}=40,1 dB(A)
 MP04: L_{den}=32,5 dB(A) & L_{night}=20 dB(A)

3.2. Noise levels calculation based on noise simulation software (Strategic Noise Map & Action Plan 2022)

| | |
|---|-----|
| Aircraft noise levels calculation based on noise simulation software | YES |
| Software used: IMMI Noise Prediction Software (according to CNOSSOS-EU and Directive 2015/996/EU and JMD ΥΠΕΝ/ΔΚΑΠΑ/13757/255/2022) | |
| Noise indicators and respective contours calculation: L_{den} , L_{night} | |
| SNM 2022 (flight data 2021) | |
|  | |

NAP 2022 (flight data 2022)



Summary of results:

For year 2022 no population or buildings within official settlement boundaries were found to be exposed to noise levels higher than the limits $L_{den}=70$ dB(A) and $L_{night}=60$ dB(A).

3.3. Vibration measurements during the reference year

| | | |
|--|--|------------|
| Πραγματοποιήθηκαν μετρήσεις δονήσεων στην περιοχή πέριξ του αεροδρομίου για το έτος αναφοράς; | | YES |
| Measurement points | | |
|  | | |
| Measurement points coordinates | Measurement points description | |
| Position 1 | Archaeological site "Toumba Livadaki". It is located in the south of the Airport and east of runway 16-34. | |
| Measurement period | 13.12.2022 – 16.12.2022 | |
| Indicators | V_v | |

Summary of measurement results:

The values are considering the aircraft landings and takeoffs on runway 16–34 because these processes cause the greatest impact on the archaeological site. The maximum value due to takeoff is 0.18 mm/sec at 16.5 Hz and 1.12 mm/sec at 63 Hz. For landings, the maximum value is 0.10 mm/sec at 16.5 Hz and 0.28 mm/sec at 63 Hz. These values are considerably lower than the regulatory limits of 6 mm/sec and 8 mm/sec, respectively.

4. AIR QUALITY

4.1. Air quality measurements during the reference year

| | | |
|--|---|-----|
| Have air quality measurements at the airport's surrounding area been performed during the reference year? | | YES |
| Measurement points | | |
|  | | |
| Measurement points | Measurement points description | |
| Position: 40° 30' 35.7" N 22° 59' 28" E | Gym Hall Neo Rysio area | |
| Measurement period: | 01.01.2022 - 31.12.2022 | |
| Pollutants measured: | PM ₁₀ , PM _{2,5} , NO ₂ , SO ₂ , C ₆ H ₆ , O ₃ | |
| Summary of measurement results: | | |
| Air quality is monitored according to the airport's monitoring program. No exceedance of the air quality limits was observed. | | |

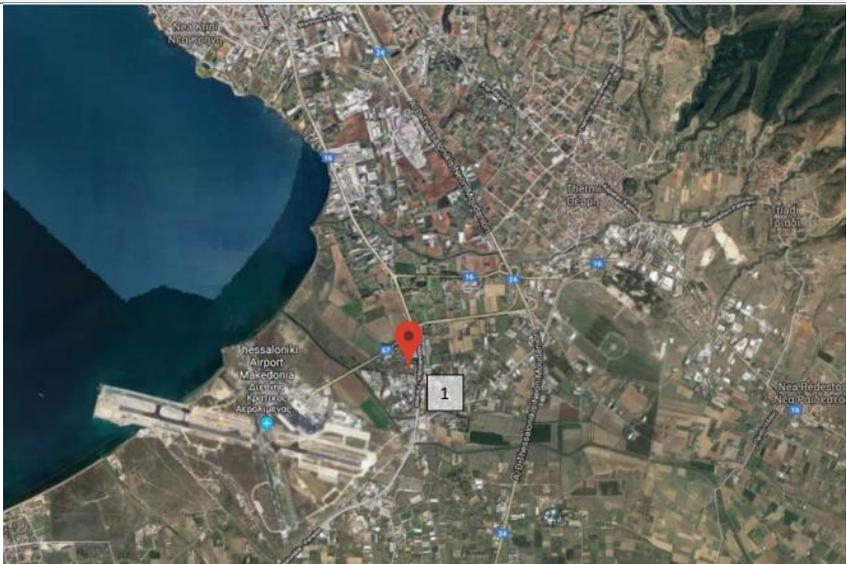
4.2. Air pollutants emission and dispersion modelling

| | | |
|--|--|-----|
| Calculation of air pollutants concentrations based on an emission and dispersion modelling software | | NO* |
| Software used: N/A | | |
| Pollutants concentrations and respective contours calculation: N/A | | |
| PM ₁₀ | | N/A |
| NO _x | | N/A |
| SO _x | | N/A |
| Benzene (C ₆ H ₆) | | N/A |

Summary of results:

According to approved environmental terms, there is no obligation for emission and dispersion modeling for this year.

4.3. Air quality measurements during the reference year

| | | |
|--|--|-----|
| Have air quality measurements at the airport’s surrounding area been performed during the reference year? | | YES |
| Measurement points | | |
|  | | |
| Measurement points | Measurement points description | |
| Position: 40° 30' 35.7" N 22° 59' 28" E | Parking area, around 2 km away from the airport | |
| Measurement period: | 09.08.2022 - 17.08.2022 24.12.2022 – 01.01.2023 | |
| Pollutants measured: | PM ₁₀ , PM _{2,5} , NO ₂ , SO ₂ , C ₆ H ₆ , O ₃ , CO | |

Summary of measurement results:

Air quality is monitored according to the airport’s monitoring program and new approved environmental terms. No exceedance of the air quality limits was observed.

5. WASTE MANAGEMENT

| Waste | Collection | Management/Disposal |
|--|---|---|
| Recyclables (paper, plastic, metals, glass) | Separate collection by the Municipality of Thermi | Disposal at material recovery facility or transshipment for recycling |
| Residues (Mixed Waste) and Bulky Waste | Collection by the Municipality of Thermi | Disposal in landfill |

Notes:

1. Regarding the different categories of the MSW (recyclables, mixed waste, bulky waste), the Airport Users handle their waste together with Fraport Greece A in most cases (central management), while in a few other cases they handled them autonomously. The implementation of a fully central system by Fraport Greece A is expected.
2. Regarding the “alternative management” waste categories (Waste lubricant oil WLO, WEEE, etc.):
 - i. Waste Lubricant Oil (WLO): Collection and management by authorized collector “CYTOP S.A.”
 - ii. Waste Electrical & Electronic Equipment (WEEE): Collection and management by alternative management system “Appliances Recycling S.A.”
 - iii. Accumulators: Collection and management by alternative management system “Re-Battery S.A.”
 - iv. Small batteries: Collection and management by alternative management system “AFIS S.A.”
 - v. Used tires: Collection and management by alternative management system “ECOELASTIKA S.A.”
3. The total quantities of the hazardous waste further to the above-mentioned and produced at the airport, are managed by licensed private companies which have a contract with Fraport Greece A, according to the provisions of the legislation in force.
4. The total quantities of the produced waste by category resulting from all activities of the airport, the collectors and final recipients, are recorded by Fraport Greece A and submitted in the Electronic Waste Registry of the Ministry for Environment and Energy via the Annual Waste Producer Report according to the provisions of the legislation in force.

6. ECOSYSTEM AROUND THE AIRPORT

6.1. Flora-Fauna

| Flora | |
|--|-----|
| Are there protected zones of vegetation/habitats in the broader airport area? | YES |
| <p>(if YES) Short description:</p> <p>Thessaloniki Airport “Makedonia” is close to the Natura 2000 site:</p> <ul style="list-style-type: none"> • GR1220002 Delta Axiou - Loudia - Aliakmona - Evryteri Periochi - Axioupoli (Area: 41,495.69ha) | |
| Fauna | |
| Are there protected species of fauna/birds in the broader airport area? | YES |
| <p>(if YES) Short description:</p> <p>Thessaloniki Airport “Makedonia” is near to the Important Bird Areas:</p> <ul style="list-style-type: none"> • GR029: Gallikos estuary and Kalochori lagoon (Area: 1848.48ha) • GR028: Axios, Loudias and Aliakmonas rivers' deltas (Area: 17911.12ha) • GR032: Lakes Volvi, Koroneia and Rentina Gorge (Area: 43019.35ha) <p>The protected bird species that have been observed at Thessaloniki airport since April 2017 are presented below:</p> <p>Black-crowned night heron (<i>Nycticorax nycticorax</i>), Black stork (<i>Ciconia nigra</i>), Collared pratincole (<i>Glareola pratincola</i>), Common gull billed tern (<i>Gelochelidon nilotica</i>), Dalmatian pelican (<i>Pelecanus crispus</i>), Eurasian bittern (<i>Botaurus stellaris</i>), Eurasian curlew (<i>Numenius arquata</i>), Eurasian spoonbill (<i>Platalea leucorodia</i>) Eurasian stone-curlew (<i>Burhinus oedichnemus</i>), Eurasian skylark (<i>Alauda arvensis</i>), European roller (<i>Coracias garrulous</i>), European turtle-dove (<i>Streptopelia turtur</i>), Gadwall (<i>Anas strepera</i>), Garganey (<i>Anas querquedula</i>), Glossy ibis (<i>Plegadis falcinellus</i>), Great egret (<i>Casmerodius albus</i>), Great white pelican (<i>Pelecanus onocrotalus</i>), Grey partridge (<i>Perdix perdix</i>), Lapwing (<i>Vanellus vanellus</i>), Lesser grey shrike (<i>Lanius minor</i>), Lesser kestrel (<i>Falco naumanni</i>), Little tern (<i>Sterna albifrons</i>), Little bustard (<i>Tetrax tetrax</i>) Long –legged buzzard (<i>Buteo rufinus</i>), Marsh harrier (<i>Circus aeruginosus</i>), Mediterranean gull (<i>Larus melanocephalus</i>), Montagu’s harrier (<i>Circus pygargus</i>), Pied avocet (<i>Recurvirostra avosetta</i>), Purple heron (<i>Ardea purpurea</i>), Red-footed falcon (<i>Falco vespertinus</i>), Shelduck (<i>Tadorna tadorna</i>), Short-toed snake eagle (<i>Circaetus gallicus</i>), Slender billed gull (<i>Larus genei</i>), Spur-winged lapwing (<i>Vanellus spinosus</i>), Squacco heron (<i>Ardeola ralloides</i>), White stork (<i>Ciconia ciconia</i>), Yelkouan shearwater (<i>Puffinus yelkouan</i>)</p> | |

7. WILDLIFE HAZARD MANAGEMENT

| Wildlife strikes and wildlife hazard management measures | |
|--|--------------------|
| Wildlife species that suffered a strike | Strikes (%) |
| Small passerines | 29% |
| Birds of prey, Owls | 27% |
| Gulls | 24% |
| Ducks, Herons, Waders | 13% |
| Pigeons, Starlings | 7% |
| Wildlife strike risk mitigation measures: | |
| <p>The presence and behavior of wildlife species at Thessaloniki airport is monitored in regular intervals, daily, from dawn to dusk. Some of the wildlife control methods applied at Thessaloniki airport are: distress calls (bioacoustics), digital sounds, anti-bird laser, pyrotechnics, etc. Preventive long-term actions that are mainly related to habitat management measures (e.g. grass cutting, water body management) are also taken to further reduce the presence of species constituting a risk to flight safety. In addition, a NOTAM is published and regularly updated.</p> | |

8. CULTURAL HERITAGE

| | |
|---|----|
| Have new cultural heritage properties been discovered during the reporting period? | NO |
| <i>(if YES)</i> Details provided in the table below: | |

| Location | Date of discovery | Type of discovery | Additional protection measures taken |
|----------|-------------------|-------------------|--------------------------------------|
| | | | |
| | | | |
| | | | |

9. RESOURCES CONSUMPTION

9.1. Energy consumption

| Energy consumption (monthly electric energy consumption, in Kwh) | |
|--|---------------|
| Total annual electric energy consumption (in Kwh) | 16.140.742,40 |

9.2. Fuel consumption

| Fuel consumption | | |
|--------------------------------------|------------------------|-----------|
| Number of FG vehicles at the airport | 32 | |
| Total annual fuel consumption | Diesel (lt) | 83.552,77 |
| | Unleaded gasoline (lt) | 2.067,40 |

9.3. Heating oil or natural gas consumption

| Heating oil or natural gas consumption | |
|--|---------|
| Total annual heating oil consumption (lt) | 0,00 |
| Total annual heating natural gas consumption (m ³) | 2.198,9 |

9.4. Fuel consumption for generator

| Fuel consumption | |
|-------------------------------|----------|
| Total annual consumption (lt) | 3.856,50 |

9.5. Water consumption

| Water consumption | |
|--|-----------|
| Total annual consumption (m ³) | 96.669,00 |

10. GREENHOUSE GAS EMISSIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO₂ emissions included in scope 1 & 2 of the GHG protocol:

- Scope 1: Direct GHG emissions that occur from sources that are owned and/or controlled by the airport,
- Scope 2: Indirect GHG emissions from the generation of purchased electricity, steam, heat or cooling consumed by the airport.

| Source Flows | Total CO ₂ Emissions (t) |
|--|-------------------------------------|
| | 2022 |
| Direct emissions form heating fuel (scope 1) | 440,84 |
| Direct emissions from fuel used for fleet vehicles (scope 1) | 227,94 |
| Direct emissions from fuel from refrigerants (scope 1) | 219,3 |
| Direct emissions from fuel used for generators (scope 1) | 10,29 |
| Indirect emissions from electricity consumption (scope 2) | 6.779,43 |
| Total (t) | 7.458,5 |
| Kg CO₂ /passenger | 1,26 |

Notes:

Fraport Greece A is committed to the monitoring, management and reduction of its airports carbon footprint. In order for this target to be achieved:

- Direct and indirect carbon emissions from all the emission sources in the airports' boundaries are calculated and reported, based on the GHG Protocol (scope 1 & 2)
- The airport is certified according to ACA (Airport Carbon Accreditation), Level-1

11. HUMAN COMSUMPTION WATER MONITORING PROGRAM

| Human consumption water quality | |
|--|-------------------|
| Water supply (public water network or airport's boreholes) | Airport boreholes |
| Is sampling of the airport's water network performed? | YES |
| <i>(if YES)</i> Sampling frequency: | Monthly |
| Summary of results: The results of the microbiological and chemical analyses show that the parameters analyzed as regards the airport's water network are <u>within the legislative limits</u> defined by the Ministerial Decision Γ1 (δ)/ΓΠ οικ. 67322/ GG 3282 B/19-9-2017 regarding the quality of human consumption water. | |

12. RAINWATER

| RAINWATER (collection, treatment disposal and recipient) | | |
|---|--|-----------------|
| Area | Collection/treatment/disposal | [YES/NO] |
| Apron and manoeuvring area | Collected in drainage ditches leading to the sea | YES |
| Other runoffs (runway etc.) | Collected in drainage ditches leading to the sea | YES |
| Treatment of rainwater by oil-separator | | YES |

| Rainwater quality | |
|--|--------------------------------------|
| Is sampling of the airport's rainwater performed? | YES |
| <i>(if YES)</i> Sampling frequency: | Every 4 months and Every 6 months |
| Parameters analyzed: pH, conductivity, TSS, DO, NO ₃ , NO ₂ , Oil & grease, BOD, COD, Total Petroleum Hydrocarbons (TPH), PAHs, BTEX, Heavy metals, PCBs, Detergents | |
| Summary of results: | |
| Surface rainwater quality is monitored according to the airport's monitoring program. Due to the absence of relevant national quality limits for surface rainwater, the specifications of ref. num. 30/49420ικ./1.10.2001 treated wastewater disposal permit issued by the Prefectural Authority of Thessaloniki and the Environmental Health & Safety Guidelines of the International Finance Corporation (IFC) are adopted. For the year 2022 the monitoring program was performed with two sets of sampling and analyses. According to FG's analyses results and based on the abovementioned specifications, the airport's rainwater environmental condition is adequate and no further treatment measure is necessary. | |

13. GROUNDWATER AND/OR SOIL AND/OR SOIL GAS MONITORING

| Groundwater and/or soil and/or soil gas quality | |
|--|--------|
| Is sampling of the airport’s groundwater and/or soil and/or soil gas performed? | YES* |
| (if YES) Sampling frequency: | Yearly |
| Parameters analyzed: TPH, BTEX, MTBE | |
| Summary of results: | |
| Groundwater quality is monitored according to the airport’s monitoring program in boreholes managed by Fraport Greece. Groundwater monitoring for 2022 was not performed. According to the approved environmental terms, monitoring of groundwater and air from the Fuel Handlers is not foreseen for the year 2022. | |

14. SEWAGE TREATMENT AND DISPOSAL

| Sewage | |
|--|------|
| Sewage network to the municipal waste water treatment plant (WWTP) | YES* |
| Autonomous airport's waste water treatment plant (WWTP) | NO |

| Blue water |
|--|
| Collection and disposal: Collection in watertight tank and disposal for pretreatment along with other airport's sewerage in the airport's pretreatment unit. Then the wastewater disposed to the municipal sewage network. |

**The Airport has been connected to the sewage network of EYATH S.A. and the disposal of the treated effluent to Thermaikos gulf has ceased.*

Note:

In the context of the monitoring of the pretreatment unit's effluent quality parameters before its disposal to the EYATH network, 9 exceedances were observed in the TN parameter and 1 in the COD parameter during the April- December period. Regarding these excesses, all the necessary corrective actions were taken (concluded in 2023) in order the unit to operate within limits.