



Ministerie van Infrastructuur  
en Waterstaat

# Notification document

European Commission notification  
Balanced Approach procedure for Schiphol

September 2023





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# Introduction

In the Dutch Cabinet's Coalition Agreement, it was agreed that an effort should be made to reduce the negative effects of aviation on people, the environment and nature. In the Schiphol Outline Paper of June 2022, the Cabinet states that it wishes to change to steering on the basis of new standards (and with enforcement focused on them), aimed at continuous reductions in future in the negative external effects of aviation. To this end, a set of standards will need to be developed and then constantly tightened.

Noise nuisance is one of the environmental effects. The trend in noise nuisance is still an upward one, despite efforts to reduce it such as by deploying quieter aircraft and implementing so-called noise abatement measures. The World Health Organization (WHO) and, following its lead, the National Institute for Public Health and the Environment (RIVM) and the Regional Medical Assistance Organisation (GGD GHOR) point to the negative effects on health of noise nuisance and disturbed sleep.

As a result, reducing the noise that local residents are exposed to has acquired a high priority. The desired reduction in noise exposure in the short term has been formulated as a quantitative noise objective and measures to achieve that objective have been catalogued. This includes specific targets for decreasing noise exposure at night. This noise objective is an intermediate phase en route to a new system that enables a focus on the effects of noise.

EU regulation 598/2014 (Environmental Noise Directive) sets out rules and procedures for the introduction of noise-related limitations on the operations of airports. The Balanced Approach procedure, as it is termed, must be followed when a member state considers introducing sound-related restrictions on the operation of an airport with more than 50,000 flight movements per year. Consulting stakeholders on measures to be taken is an important step in this. Besides ongoing coordination and information exchange with stakeholders, a consultation took place from 15 March to 15 June 2023 in which all stakeholders had the opportunity to comment on the

potential measures, but also to propose alternative measures. The target group for this consultation included: local residents, bodies representing businesses, trade unions and bodies representing employees, nature and environmental organisations, airport operators, airlines, air traffic control organisations, the network manager and other authorities.

The consultation led to a deeper understanding of the diverse (sub)interests of stakeholders, their analysis of the issues as well as desired and undesired solution directions. The alternative measures put forward increased the number of options available in the short term and also created several options for future improvements. The feasibility assessments by Air Traffic Control The Netherlands (Luchtverkeersleiding Nederland) and the Human Environment and Transport Inspectorate (ILT) acted as frameworks within which choices could be made.

Based on the various interests and reactions, the Ministry of Infrastructure and Water Management made a careful assessment and determined the final combination of measures. By means of the present document, notification of the measures will be communicated to the European Commission, the EU Member States, the United States and Canada pursuant to Article 8(1) of the Environmental Noise Directive.

# Reading guide

The *summary* reflects the essence of the notification document.

*Chapter 1* outlines the context in which the Cabinet took its decision. It discusses the interrelated challenges of the area around Schiphol and why reducing noise levels has become a priority. The chapter explains how setting a maximum for noise exposure in the short term is one of the three tracks aimed at the continuous abatement of noise nuisance.

*Chapter 2* gives readers unfamiliar with Schiphol a short introduction to the development of the airport, the use of runways at Schiphol and the way noise exposure is determined.

*Chapter 3* discusses how the restriction of noise nuisance has been implemented to date, the legal framework within which that has been done and what the results have been.

*Chapter 4* is a summary of the impact of the consultation. It indicates how stakeholder responses have influenced the composition of the final combination of measures in this document.

*Chapter 5* describes the noise objective, split into 24-hour and night. The reference used to relate the objective is also explained here.

Chapters 6 to 8 present the substantive selection process of measures. *Chapter 6* presents the shortlist of measures that meet the criteria against which all potential measures were assessed. The shortlist is the list from which the final measures to be notified were chosen. *Chapter 7* describes to what extent the shortlisted measures can contribute to achieving the noise objective and how cost-effective they are relative to each other. *Chapter 8* presents the measures chosen and thus to be notified.

*Chapter 9* contains the summary of the feasibility assessments by Air Traffic Control The Netherlands (LVNL) and the Human Environment and Transport Inspectorate (ILT) on the feasibility of the measures presented in the consultation document as well as the measures that are part of the final combination of measures. It includes a paraphrasing of the comments Schiphol Airport made in its response to the consultation document on the feasibility of the measures.

*Chapter 10* looks ahead to the steps following the notification and discusses the coordination that took place with the slot coordinator and the network manager.

*Appendix 1* describes how stakeholders were informed and consulted.

*Appendix 2* contains the common thread that can be detected in the submitted responses to the consultation paper and also a summary of the impact of these responses on the creation of the shortlist.

*Appendix 3* contains the list of alternative measures and suggestions from the responses to the consultation paper. This appendix also indicates which proposals on the shortlist were adopted and the trade-offs that were decisive in doing so.

The *overview of annexes* contains links to underlying studies, Cabinet decisions and the like.



# Summary

## Urgency of the ‘Noise problem’ and background of the Cabinet’s decision in June 2022

The Cabinet wants to reduce the negative impact of Schiphol Airport on people, the environment and nature while at the same time maintaining the airport’s economic function. That is why a new balance needs to be found between the quality of the Netherlands’ connections with the rest of the world on the one hand – an aspect where Schiphol Airport plays a key role – and the airport’s effects on nature, public health, liveability and the environment on the other.

Starting in 2006, a large number of measures have been taken to mitigate noise nuisance in the vicinity of Schiphol based on intensive consultation between stakeholders – a unique approach, internationally. These are measures targeting the source of the noise (e.g. encouraging the use of quieter aircraft), spatial planning (e.g. home insulation), operational flight procedures (e.g. changing flight paths) and operational restrictions (the proposed but not implemented limit on the number of night flights).

Despite all the efforts, there has not been an absolute decrease in the noise nuisance. Various studies have shown that the trend in noise nuisance is still upwards. Potential reductions in noise exposure, including abatement thanks to the use of ever quieter aircraft, have been accompanied by growth in the number of flights. The net effect has not been an improvement for local residents.

Despite the use of quieter aircraft, there is still an increase in serious nuisance, as various studies show. In addition to noise calculations – via the methodologies prescribed by

the Environmental Noise Directive – the World Health Organization (WHO) and, following its lead, the National Institute for Public Health and the Environment (RIVM) and the Regional Medical Assistance Organisation (GGD GHOR) point to the negative effects on health of noise nuisance and disturbed sleep.

There is, therefore, a noise problem as defined by the Noise Ordinance and Directive (EC) 2002/49 (‘Environmental Noise Directive’). Addressing this noise problem, by reducing noise exposure, has therefore been given high priority. To achieve the reduction in noise exposure, a Balanced Approach procedure has been initiated, as it cannot be excluded that noise abatement will be accompanied by a restriction of operations. The desired reduction in noise exposure in the short term has been formulated as a quantitative noise objective and measures to achieve that objective have been catalogued. This includes specific targets for decreasing noise exposure at night.

The noise problem and the noise objective based on it have also been incorporated into the Noise Action Plan, with stakeholders given the opportunity to comment on the proposed changes during consultation.

## Noise objective

The noise target to be achieved for the Balanced Approach is defined in accordance with Article 5 of the Environmental Noise Directive and expressed in percentages relative to a baseline situation. The baseline is the traffic flow and impact on noise exposure that would occur in November 2024 without any additional measures.

Table S.1 Noise objective

Indicator	Residential	People
The number of houses within the the 58 dB(A) $L_{den}$ contour	minus 20 per cent	
The number of highly annoyed people within the 48 dB(A) $L_{den}$ contour		minus 20 per cent
The number of houses within the 48 dB(A) $L_{night}$ contour	minus 15 per cent	
The number of severely sleep disturbed people within the 40 dB(A) $L_{night}$ contour		minus 15 per cent



The indicators were formulated in units ( $L_{den}$  and  $L_{night}$ ) that are in line with the Environmental Noise Directive on determining noise exposure. They are also enshrined in Dutch legislation and regulations. They indicate the amount of noise over a 24-hour period or over the nighttime period respectively for a number of houses or people.

## Consultation

The internet consultation for the Balanced Approach Schiphol was open for comments from 15 March to 15 June 2023. Stakeholders participating in the consultation were invited at any rate to give their views on the selection, composition, effect and desirability of the three combinations of measures presented in this document. The participants were also invited to suggest alternative measures or alternative combinations of measures that could achieve the noise objective and be implemented by November 2024.

A total of 224 responses were submitted, 173 of which have been made publicly available with the consent of the respondents. Local authorities – municipalities and provinces –, residents' organisations and nature/environmental organisations explicitly support the path that has been chosen, in which a significant improvement with regard to noise nuisance will be achieved by November 2024. Airlines – varying from one to another – are more critical with regard to the proposed measures, the level and substantiation of the noise objective and the deadline set to achieve the noise objective. Schiphol airport endorses the urgency of the issues surrounding the noise nuisance.

In achieving the noise objective, however, there is a marked difference in preference for the type of measures. Local authorities favour operating restrictions. Non-European governments who responded reject operating restrictions. Nature/environmental organisations and local residents have an explicit preference for more far-reaching operating restrictions than those in the consultation document, with some of the local residents and municipalities – in the so-called South East corner of the area surrounding Schiphol – emphasising that even in the event of capping the number of movements, attention should be paid to a proportionate improvement of all runways for local residents. Airlines emphasise – without completely ruling out operating restrictions – alternative measures in the categories of source policy, spatial planning and management, and operational procedures. Schiphol Airport submitted its own so-called 8-point plan.

The submitted responses show that the noise objective has been considered from different perspectives. There are responses indicating that more noise reduction can and should be achieved than the reduction contained in the

established noise objective. In most cases, this is related to Schiphol Airport's 8-point plan presented in the media, with a focus on measures at night. In addition, it was repeatedly argued that the level of the noise objective, combined with the deadline set, would be disproportionate and exclude alternative longer-term measures.

In addition to the above signals, the consultation also produced a number of alternative measures.

## Incorporation of consultation responses

The submitted alternative measures were assessed based on the same selection criteria applied to the measures already proposed in the consultation document and used throughout the procedure. Alternative measures that score sufficiently on these selection criteria have been calculated in terms of whether they achieve the objective and their cost-effectiveness. They were placed on the shortlist from which the final combination of measures was chosen. The measures resulting from the consultation responses that ended up on the shortlist are: (1) Fleet renewal and (2) Swapping quieter aircraft from day to night (or use of quieter aircraft at nighttime period). A potential measure or suggestion not being placed on the shortlist does not mean that the measure in question is of insufficient quality or is not promising for the future, following the realisation of the objective by November 2024. The responses received led to a zooming in on the noise issue – including its formulation and substantiation – from various interests, explaining the methodologies used more thoroughly, reconsidering measures, adding new measures and, ultimately, also choosing a different combination of measures than is proposed in the consultation document.

## Feasibility assessments on the measures

Air Traffic Control The Netherlands (LVNL) assessed the feasibility of the individual measures shortlisted in the consultation document and the three selected combinations. The two assessment criteria used for this were safe operation and impact on the organisation. The Human Environment and Transport Inspectorate (ILT) did an impact assessment in which points of interest regarding safety and any expected impact on noise levels were reported. Schiphol Airport commented on the feasibility of the measures in its response to the consultation document.

Based on results of the assessments, a reduction in the use of the Buitenveldert Runway was rejected as a potential measure. According to the assessments, its use cannot be further minimised. In addition, the assessments warn against combining operational measures, as this would increase the complexity of the operation and, therefore, potentially lead to unsafe situations, among other things. The ministry has therefore decided to make only

one operational measure part of the chosen combination of measures, namely limiting secondary runway use.

Extending the night regime (evening and morning) was also removed from the shortlist based on the implementation tests. The peaks at the so-called shoulders of the night become higher and longer with the measure in this form. This, like the combination of operational measures, leads to an increase in complexity.

LVNL has also assessed three alternative measures (1. Fleet renewal, 2. Use of quieter aircraft at nighttime period and 3. Ban on the noisiest aircraft) that emerged from the consultation responses and meet the criteria for inclusion on the shortlist. LVNL indicates that – provided various preconditions are met – they are feasible.

### Phased realisation of 24-hour nuisance reduction

Based on the responses and alternative measures submitted, a nuanced picture emerged regarding the implementation of measures. There are a limited number of measures that contribute to achieving the noise objective in the short term. Analyses carried out prior to the Outline Decree of June 2022 indicate that with a reduction to 440,000 aircraft movements, network quality is still sufficiently safeguarded. However, based on the limited set of measures that now remains, further night and 24-hour capacity reductions would be required to meet the stated noise objective. A capacity reduction that goes beyond the stated 440,000 aircraft movements. This is not sensible given the preservation of network quality and such a choice also does not suit the demissionary (caretaker) status of the Cabinet.

On the other hand, there are indeed measures that have the potential to have a great effect, but whose noise impact and cost-effectiveness still need to be investigated further and which, moreover, cannot be implemented by November 2024. This concerns, for example, Schiphol Airport’s plan for a night closure and the banning of noisy aircraft.

Another example is fleet renewal, which has been shortlisted, but after analysis it appears to have an effect mainly after 2024.

All this leads to the proposal to maintain the noise objective of minus 20 per cent in the 24-hour period and minus 15 per cent at night, but to opt for achieving about 15 per cent of this as a first step (by November 2024) and achieving the remaining 5 per cent in the 24-hour period in a subsequent phase. In preparation for this next phase the effect of the already implemented measures will be assessed.

This approach, the ministry believes, will do justice to the interests of both local residents and the aviation industry. A major step is being taken in the short term to reduce noise nuisance while at the same time allowing for the realisation of promising proposals that were made during the consultation but which cannot be included in the present notification. The exact details of the measures to achieve the full 24-hour target will be determined by a new Cabinet, in accordance with the Environmental Noise Directive.

### The final combination of measures in the notification

The chosen combination of measures to achieve the noise objective by 2024 is:

1. The use of quieter aircraft at nighttime period.
2. A reduction in the use of secondary runways.
3. A cap of 28,700 movements at night.
4. A cap of 452,500 annual movements.

The effects of realising this combination of measures are:

**Table S.2 The effects of the chosen combination of measures**

Indicator	Residential	People
Number of houses within the 58 dB(A) $L_{den}$ contour	minus 15.9 per cent	
Number of highly annoyed people within the 48 dB(A) $L_{den}$ contour		minus 17.3 per cent
Number of houses within the 48 dB(A) $L_{night}$ contour	minus 15 per cent	
Number of severely sleep disturbed people within the 40 dB(A) $L_{night}$ contour		minus 18.9 per cent



## **The perspective**

It is essential to put the Cabinet's decision in the context of its goal of achieving ongoing noise nuisance abatement and the outlook this entails for all stakeholders. There is an urgent need for measures that can achieve a basic level for the maximum permissible noise exposure. Thereafter, that may leave room for growth in the aviation sector through innovations and measures that further reduce negative impacts of aviation, benefiting the local area and also the aviation sector. This principle should be fleshed out in a future system of standards. In addition to the new standards system for aircraft noise, work is also underway on a CO<sub>2</sub> cap and studies are underway for a standardisation regarding other emissions.

## **Note about the demissionary status of the Cabinet**

The Dutch Cabinet currently has a demissionary (caretaker) status. Notifying these measures does not conflict with that. For the benefit of local residents, the Cabinet considers it important to realise noise nuisance reductions in the short term and therefore to issue this notification. Equally important is creating clarity for the aviation sector. After review by the European Commission, it is up to the new Cabinet to take a final decision on the implementation of the combination of measures now before it.



# 1

# Policy context

## Introduction

Schiphol Airport plays a key role in connecting the Netherlands to the rest of the world and it is therefore a cornerstone of the Dutch economy. However, the impact of the airport on the environment, public health and liveability in the vicinity of Schiphol Airport is also significant – an impact that has grown to such an extent that the government deems intervention necessary. These include noise nuisance, which is the subject of this consultation paper, but also, for example, emissions of CO<sub>2</sub>, nitrogen oxides and particulates. These various aspects cannot be considered in isolation. The Cabinet wants to develop a new system with standards for noise exposure and dust emissions. These norms will replace fixed numbers of flight movements per year. Developing such a system, which will be done in collaboration with stakeholders, will however take time. Short-term measures are therefore needed as precursors. Putting a cap on noise exposure is one of the priorities in improving environmental quality and restoring local residents' trust in government and institutions in ensuring that environmental quality.

The Cabinet wants to make sure that the upward trend in noise nuisance is turned into a permanent downward trend: 'Bending the curve in noise abatement'. That is outlined in the rest of this document, including the positioning of the noise issue in a broader social context and its urgency.

Following on from that, the decision taken by the cabinet on 24 June 2022 will be explained.

The elaboration of the Cabinet's decision into a concrete noise target and cost-effective measures to achieve it can be found in other chapters, namely chapters 5 through 8.

## 1.1 The social context and urgency of finding solutions

### Social challenges and broad prosperity

The Netherlands, with an average of 519 inhabitants per square kilometre, faces several major social challenges, for example relating to the environment and health, the climate, infrastructure, housebuilding and the energy transition. The effects are particularly acute in the area around Schiphol Airport and aviation has relatively large negative effects on health, nature and the environment. The national challenges that are relevant here are curbing the negative impact of aviation on the living environment, making local businesses and the aviation industry more sustainable, transitions in agriculture, strengthening the energy grid (needed in part to reduce the use of fossil fuels), the construction of large volumes of new housing, and the improvement of liveability, nature conservation and nature restoration. All these challenges are closely interrelated and

influence the quality of life in the vicinity of the airport. Policy must be based on a consideration of all the public interests and social challenges facing us in the area around Schiphol and beyond. These tasks cannot be tackled in isolation and a system of standards for noise exposure and emissions will eventually have to be put in place. However, the short-term urgency already demands that steps should be taken to restore the balance around Schiphol.

The focus in this notification is on measures to reduce noise nuisance around Schiphol Airport. The Balanced Approach procedure includes rules regarding, among other things, the calculation of noise and the cost-effectiveness of measures. Noise exposure is calculated in accordance with Doc29 modelling and the costs versus benefits of each measure are calculated. Choices are, therefore, based on cost-effectiveness studies in accordance with the prescribed Balanced Approach procedure, and operating restrictions are the last resort. In line with the social challenge outlined above, it is important not to lose sight of the broader context and the necessity of measures. Calculation models sometimes lead to an underestimation of the impact of noise on the local residents concerned. Calculating the noise exposure by only employing Doc29 and cost-effectiveness – however necessary in the analysis and comparison of measures – ignores the entire experience of nuisance and new and developing insights and values regarding prosperity and well-being. After all, realising so-called broad prosperity<sup>1</sup> requires the simultaneous weighing of both economic goals and those in the social and cultural field, the living environment and democracy. This is articulated, among other things, in the Sustainable Development Goals (SDGs) established by the member states of the United Nations for 2015-2030 and embraced by the European Union. Like other countries, the Netherlands reports to the UN on progress, see the SDG Nederland website. The Parliament's Temporary Committee on the Broad Prosperity Concept already concluded in 2016 in its report 'Welvaart in kaart'<sup>2</sup> that more structured attention to broad prosperity is needed in the political and social debate. The committee then recommended that CBS develop an annual 'Broad Prosperity Monitor'. That monitor should ensure alignment with the growing international consensus on standards for measuring broad prosperity. In 2021, the Netherlands Environmental Assessment Agency published a

report on Broad Prosperity and Mobility<sup>3</sup>. It states that mobility makes an important contribution to people's broad prosperity. It enables them to access jobs, amenities and social contacts, and it can make a positive contribution to their physical and mental health. However, mobility can also reduce broad prosperity, for example by causing noise nuisance, environmental pollution, climate change and a lack of (traffic) safety. These aspects are not (yet) included in the current European legislative framework prescribing the Balanced Approach, but nevertheless constitute an important factor in the decision-making process concerning the policy to be implemented to improve the living environment and the health of people living near Schiphol Airport, as well as the environment as a whole.

### Urgency

The Cabinet wants to reduce the negative impact of Schiphol Airport on people, the environment and nature. It is necessary to find a new balance between the quality of the Netherlands' connections with the rest of the world on the one hand, an aspect where Schiphol Airport plays a key role, and the airport's effects on nature, public health, liveability and the environment on the other. In this context, it is also relevant to note that Schiphol Airport does not yet have a nature permit<sup>4</sup> and the legal position of local residents needs to be reinforced.

The number of aircraft movements to and from Schiphol increased to a maximum of 500,000 in 2016 and then remained there until the start of the Covid-19 pandemic. This maximum number was agreed upon between local residents and the aviation industry at the so-called Alderstafel forum, but was never legally binding in the Schiphol Airport Traffic Decree<sup>5</sup>. Despite flights using increasingly quiet aircraft on average with other measures that have been and are being taken to reduce noise nuisance as much as possible, that nuisance has still increased. The World Health Organization (WHO)<sup>6</sup>, and consequently also the National Institute for Public Health and the

<sup>1</sup> See, for example, Indicatoren voor brede welvaart in het mobiliteitsdomein (Indicators for broad prosperity in the mobility domain), a TNO study, December 2021

<sup>2</sup> Conclusie en debat | Tweede Kamer der Staten-Generaal (Conclusion and debate | House of Representatives of the Netherlands)

<sup>3</sup> Brede welvaart en mobiliteit | PBL Planbureau voor de Leefomgeving (Broad prosperity and mobility | PBL Netherlands Environmental Assessment Agency)

<sup>4</sup> Schiphol ought to have a nature permit. That follows from the individual European and national regulations based on the European Birds and Habitats Directives and the Dutch Nature Conservation Act. The airport's application for a nature permit is ongoing and separate from this consultation.

<sup>5</sup> The Alderstafel forum was a consultative structure in which stakeholders made agreements with each other about inter alia the growth of Schiphol and the conditions for it (see Chapter 2).

<sup>6</sup> World Health Organization Regional Office for Europe, Environmental noise guidelines for the European region. 2018, WHO Regional Office for Europe: Copenhagen, Denmark.



Environment (RIVM) and the Regional Medical Assistance Organisation (GGD GHOR), point to the negative effects on health of noise nuisance and disturbed sleep. For this reason, the Cabinet has already stated in the Aerospace Memorandum that noise exposure and thus nuisance must be reduced for the benefit of the health of local residents and to improve the quality of the living environment.

Attention to reducing noise exposure – in an intensive collaboration and dialogue between all stakeholders – has been in place for a long time. There have been numerous initiatives that can be classified into the three categories of measures – respectively (1) Reduction of aircraft noise at source, (2) Spatial planning and management and (3) Operational procedures – to be considered on the basis of the Balanced Approach before moving on to (4) Operating restrictions. The initiatives that have been undertaken and a range of initiatives yet to be undertaken are described in Chapter 3. However, the positive impact of these realised measures and the expected effects of initiatives yet to be realised are insufficient. More needs to be done to achieve a significant improvement in the short term and provide a continuous reduction in noise nuisance in the longer term.

## 1.2 From an upward to a downward trend in noise nuisance

### Cabinet Decision of 24 June 2022

The Schiphol Outline Paper<sup>7</sup> of 24 June 2022 sets out an approach that the Dutch Cabinet will elaborate and implement in the coming years. Within the scope of the EC Regulation No. 598/2014 (known as the ‘Environmental Noise Directive’), this consultation paper only discusses noise-related policy goals and the operating restrictions for the airport resulting from the introduction of what is known as a ‘noise cap’, including the measures required for this purpose. When reading the elaboration of noise measures in this notification document, it is however important to realise that they are part of a wider-ranging consideration. The decision to cap the environmental effects of Schiphol – of which noise nuisance is one – is an important step towards achieving a balance in the larger social tasks focused around Schiphol. The final choice of measures for reducing environmental impacts are based on this balance of the wider public interests. The Dutch Cabinet’s decision, therefore, includes an assessment of what was proportionate. Retaining the airport’s international connectivity was part of that. The Cabinet is basing this on a study it commissioned of international connectivity. This analysis shows that within a range of around

400,000-440,000 aircraft movements, adequate accessibility of the Netherlands is guaranteed and a core network of strategic destinations can remain intact. At the same time, the main destinations for the Netherlands can even then be expected to remain in the network. The hub operation can, therefore, remain in place. The study has been included in the appendices to the Schiphol Outline Paper.

The reduction in noise exposure was translated into a noise objective and measures to achieve that noise objective. Prior to the final choice of the combination of measures, the individual shortlisted measures were assessed for their cost-effectiveness in relation to each other. Then, based on this cost-effectiveness, the combination of measures was put together. Limiting the capacity of the airport is an unavoidable part of the chosen measures.

### Implementation of the Cabinet decision of 24 June 2022

The Cabinet intends to work on implementing the decision of June 2022 in three tracks. The first track involves stopping what is termed ‘anticipatory enforcement’. Ever since 2010, flights have been based on a system of strictly preferential runway use in anticipation of the New Standards and Enforcement System for Schiphol (NNHS). While waiting for a new Schiphol Airport Traffic Decree (LVB), there has been no more enforcement since 2015 of the applicable legal system of noise exposure limits with enforcement points. As a result, local residents cannot appeal to noise standards that are laid down in law and enforced. Due to the long period of non-enforcement and following a signal from the Human Environment and Transport Inspectorate (ILT), the Cabinet has decided to stop the anticipatory enforcement from 31 March 2024 to restore the legal status of local residents, in combination with the entry into force of a ministerial regulation to preserve strict preferential runway use as much as possible. The earlier intention to end anticipatory enforcement by the end of October 2023 proved impossible, due to summary proceedings initiated by several parties from the aviation sector. The judgement of the preliminary injunction court in the summary proceedings, which prohibited the State from discontinuing anticipatory enforcement, was overturned on appeal by the Amsterdam Court of Appeal and the airlines’ claims were rejected. As a result, anticipatory enforcement can still be terminated as of 31 March 2024, in conjunction with adoption of the ministerial regulation. Parties from the aviation sector have announced their intention to appeal the judgement. However, these appeal proceedings have no suspensive effect.

<sup>7</sup> Hoofdlijnenbrief Schiphol (Schiphol Outline Letter).



The second track is to introduce measures that ensure a reduction in noise nuisance. The Balanced Approach procedure, which includes this notification, focuses on reducing noise nuisance in this second track.

This is followed by the third track, which introduces new systems that enable targeting of reductions in environmental impacts, such as noise and emissions.

The three tracks together will turn the upward trend in negative external effects, including noise nuisance, into a downward trend. The new system of standards – the third track – is a prerequisite for the desired continuous reduction in adverse environmental effects in the longer term.

### **Necessity of the Balanced Approach procedure**

The above indicates that the measures realised to date – in intensive cooperation with the aviation industry and other stakeholders, see also Chapter 3 – in the categories prioritised in the Balanced Approach have produced too little to significantly reduce the nuisance. The initiation of a Balanced Approach procedure is not the beginning of alignment and exploration of measures, but was initiated by the assessment that some form of an operating restriction is unavoidable. This has been articulated in the Schiphol Outline Paper and it is important here to realise the interrelationship with improving the quality of the living environment as a whole, restoring the confidence of local residents and balancing all social interests.

### **Perspective for all stakeholders**

It is essential to put the Cabinet's decision in the context of its goal of achieving ongoing noise nuisance abatement and the outlook this entails for all stakeholders. There is an urgent need to take measures that will achieve a base level of maximum permissible noise exposure. Thereafter, that can eventually leave room for growth in the aviation sector through innovations and measures that further reduce negative impacts of aviation, benefiting the local area and also the aviation sector. This principle should be fleshed out in a future system of standards. In addition to the new standards system for aircraft noise, work is also underway on a CO<sub>2</sub> cap and studies are underway for a standardisation regarding other emissions.



# 2

## Schiphol: an introduction

To provide an introduction, a brief sketch follows of the airport, the runway use characteristic of Schiphol and the noise regulations that apply.

### 2.1 Development of the airport

Over the course of time, Schiphol has become one of the largest European hubs. A hub is an airport where passengers are taken from other airports (the spokes) to change to different flights. The hub model explains why Schiphol has far more direct connections with continental and intercontinental destinations than would be expected based on the size of the Dutch domestic market.

#### Growth in aircraft movements

The number of flight movements at Schiphol for commercial traffic has increased steadily over the past fifteen years, with the inevitable fluctuations (for example caused by the economic crisis of 2008–2010) from around 410,000 movements in 2000 to nearly 450,000 movements in 2015 and almost 500,000 flight movements in the pre-Covid year of 2019.

#### The numbers that characterise Schiphol<sup>8</sup>

The fact that Schiphol is a hub airport par excellence is reflected in the number of destinations. There are direct connections to over 300 destinations (313 in 2022, including 129 intercontinental).

There were 52.5 million passengers in 2022, 37 per cent of them transferring to another flight at Schiphol. The number of aircraft movements in 2022 was close on 400,000, 20 per cent down on nearly 500,000 in the pre-Covid year of 2019.

Schiphol processed 1.44 million tons of cargo in 2022, down 9 per cent from 2019 (1.57 million tons). There were 18,340 full cargo flights, a 30 per cent increase compared to 2019 (14,156 cargo flights).

The 2023 usage forecast assumes between 432,000 (lower limit of the so-called low scenario) and 487,000 (upper limit of the so-called high scenario) aircraft movements. Included in the (maximum) scenario of 487,000 aircraft movements is 31,300 aircraft movements at night.

<sup>8</sup> Source: Schiphol Airport website

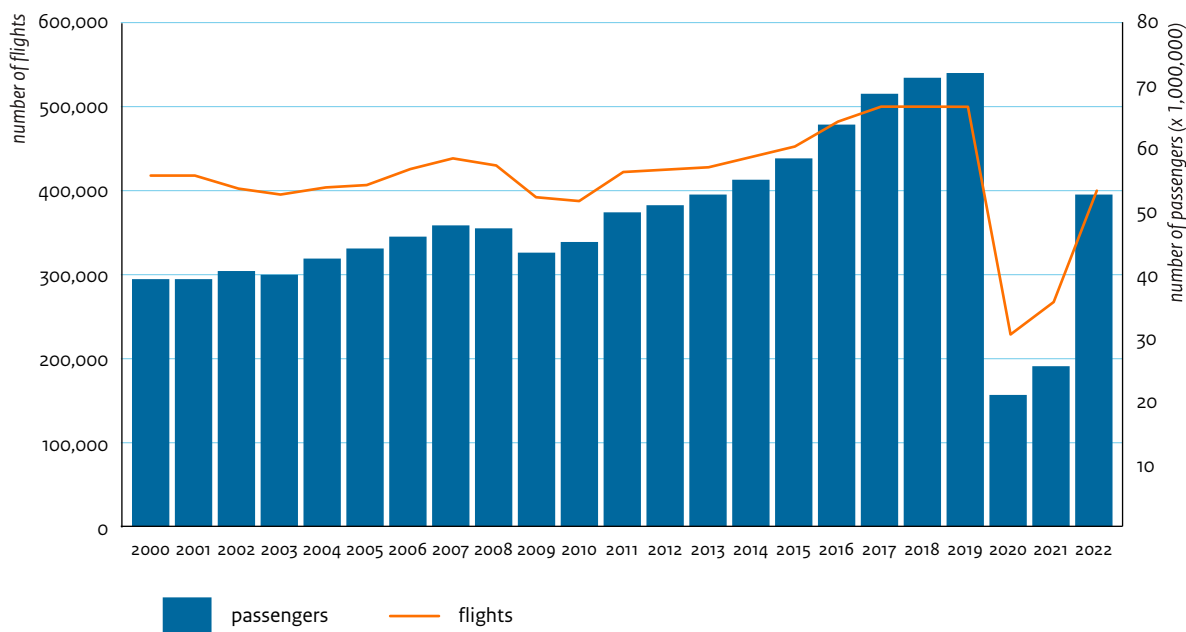


Figure 2.1 Number of flights and passengers, source Central Bureau of Statistics (CBS)

## 2.2 Runway use as it affects noise

### Preferential runway use

Schiphol has a total of six runways: the Kaagbaan, Polder, Zwanenburg, Aalsmeer, Buitenveldert and East Runways. The East Runway is principally used for small aircraft. The reservation of a piece of land earmarked for the so-called parallel Kaagbaan Runway was lifted in June 2023. This additional runway will not be built.

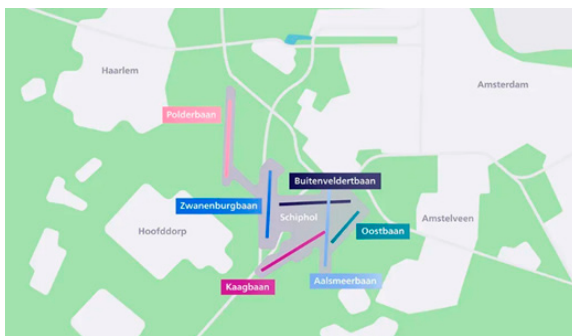


Figure 2.2 Schiphol runway system

Source: Schiphol Airport

Runway use is regulated by a system of what is known as ‘preferential runway use’. Winds, cloud bases and visibility restrictions can make it necessary to use different runway combinations all the time, depending on the conditions. A major factor is the prevention of a one-sided and disproportionate exposure to noise nuisance in a limited area. Choosing the runway combinations to be used is done using what is termed the ‘preference order’, aiming to use the runways that cause the least noise nuisance. This

concept is referred to as ‘preferential runway use’. In terms of noise nuisance, the Kaagbaan Runway and Polder Runway are deemed to be preferential. There are always at least two runways in use, one for air traffic taking off and one for landing. At (double) peak times, three or four runways may be in use. At night, the principle is that only the Polder Runway and the Kaagbaan Runway may be used.

### The currently applicable system with enforcement points and noise standards

The currently applicable noise nuisance system for Schiphol Airport is based on threshold values for the noise exposure at what are known as ‘enforcement points’. Around the airport, there are two types of enforcement point: 35 points for the all-day (24-hour) period and 25 for the nighttime period.

Every enforcement point has a limit value that must not be exceeded during the operating year. In practice, the actual utilisation of runways has been found to deviate from forecasts. The consequence has been that noise exposure levels in practice are distributed differently within the surrounding area than was expected. For that reason, rules for runway use were formulated in 2010. Rules ensuring ‘strict preferential runway use’ have been implemented by air traffic control and airport since then. These rules are part of the New Standards and Enforcement System (NNHS<sup>9</sup>).

<sup>9</sup> See Milieueffectrapportage (EIA) Nieuw Normen- en Handhavingstelsel Schiphol (NNHS).

# 3

## Noise nuisance at Schiphol over the course of time

### Introduction

Noise nuisance has been a major issue in relation to the growth of Schiphol Airport since the 1960s. Since then, it has been a balancing act between the growth and development of Schiphol on the one hand and improving the quality of the living environment and increasing the options for using the space around Schiphol on the other.

There has been a great deal of consultation, research, experimentation and implementation to reduce noise nuisance. This chapter deals with:

- the consultative structures in which the stakeholders meet.
- the legal framework covering noise nuisance.
- a description of the types of measures that have been put in place.
- the conclusion that noise exposure and nuisance is increasing despite all the measures.

### 3.1 Consultative structures

To make the balancing act discussed in the introduction possible, there have been various consultative structures since the 1990s in which the stakeholders have been represented. Initially, the Schiphol Noise Commission was established under the direction and responsibility of the Ministry of Infrastructure and Water Management. In 2003,

that committee was included in the Dutch Aviation Act as the Schiphol Airport Regional Consultative Committee (Commissie Regionaal Overleg Luchthaven Schiphol, hereinafter also “CROS”). CROS has consisted of delegations – often multiple ones – from the aviation sector (Schiphol Airport, Air Traffic Control The Netherlands, KLM, Transavia and Martinair), local authorities (3 provinces and 33 municipalities) and residents’ representatives.

In 2006, a new consultative structure was established alongside CROS, known as the Alderstafel. This consists of Schiphol Airport, Air Traffic Control The Netherlands, KLM, other airlines (through BARIN<sup>10</sup>), the Schiphol Administrative Region (BRS, cooperating provinces and municipalities), representatives of the CROS residents’ organisations and united local residents’ platforms, plus the Ministry of Infrastructure and Water Management. The purpose of the Alderstafel forum has been to produce substantiated advice for the government on the use of Schiphol as it affects the surrounding area, largely concerning the growth of Schiphol and the conditions under which this can take place.

<sup>10</sup> The Board of Airline Representatives In the Netherlands; the industry association for airlines undertaking business in the Netherlands.

In 2015, the Alderstafel and CROS merged to become the Schiphol Environmental Council (Omgevingsraad Schiphol, ORS). In addition to the members of the former CROS and Alderstafel, the employers (Confederation of Netherlands Industry and Employers, VNO-NCW) and the North Holland Environmental Federation also joined.

In 2019, Mr Alders (the chairman) reported in his final recommendations to the Minister of Infrastructure and Water Management that there is no longer any backing in the surrounding region for further growth of Schiphol and, as a result, it is no longer possible to provide recommendations with such backing. His successor, Mr van Geel, concluded in 2020 that the ORS no longer functions as intended, the Dutch polder model no longer works and that a new consultative structure and forms of public participation are needed. This was confirmed by the decision by the BRS to cancel its membership of the ORS from 01/01/2022. On 1 July 2023, the Schiphol Social Council (MRS) was installed as the successor to the ORS. In addition to seats for residents' organisations, the MRS has seats for organisations representing a broad spectrum of social interests as well as knowledge institutes. The aviation industry, the BRS and the Ministry of Infrastructure and Water Management no longer have formal seats but will take part as dialogue partners.

### 3.2 Noise nuisance and the legal framework

The applicable legal framework for Schiphol is the amended Schiphol Airport Traffic Decree (LVB) of 18 September 2008<sup>11</sup>. This LVB has been updated by amendment decrees of 22 February 2010<sup>12</sup> (amended approach and departure flight paths and amended limit values), 24 July 2010<sup>13</sup> (amended approach and departure flight paths), 11 August 2012<sup>14</sup>

<sup>11</sup> Decree of 18 September 2008 amending the Schiphol Airport Traffic Decree in connection with better utilisation of environmental space and modifying eastward departure flight paths from the Zwanenburg Runway (Bulletin of Acts and Decrees 2008, 390)

<sup>12</sup> Decree of 22 February 2010 amending the Schiphol Airport Traffic Decree in connection with the modification of various departure flight paths from the Schiphol East Runway, the Polder Runway, the Kaagbaan Runway and the Buitenveldert Runway (Bulletin of Acts and Decrees 2010, 125)

<sup>13</sup> Decree of 24 July 2010 amending the Schiphol Airport Traffic Decree in connection with the modification of departure flight paths from the Schiphol East Runway, the Polder Runway, the Kaagbaan Runway, the Zwanenburg Runway, the Aalsmeer Runway and the Buitenveldert Runway (Bulletin of Acts and Decrees 2010, 329)

<sup>14</sup> Decree of 11 August 2012 amending the Schiphol Airport Traffic Decree in connection with the offering of the possibility to extend the period for the nighttime approach and departure procedures (Bulletin of Acts and Decrees 2012, 382)

(extension to the nighttime period), 2016<sup>15</sup> (bringing forward the nighttime period) and 2018<sup>16</sup> (imposing a ceiling of 32,000 night flights). Aspects addressed by the LVB include setting noise exposure limits through fixed enforcement points for the nighttime period and 24-hour periods. In addition, what is known as the 'equivalence principle' applies, whereby the LVB implements Article 8.17 of the Aviation Act: on balance, the level of protection provided by the new LVB must be equivalent to or better than that of the preceding decree. The changes set out in the 2010, 2012 and 2016 decrees were studied in advance through what are termed 'temporary experimental arrangements'. All decisions received positive recommendations from either the Alderstafel or the ORS.

The Dutch Aviation Act and the Aviation Environmental Noise Regulations implement the EU Environmental Noise Directive. A noise map is determined every five years that shows the number of houses, other noise-sensitive buildings and noise-sensitive areas exposed to a certain level of noise. A Noise Action Plan is determined every five years that includes a planned threshold for aircraft noise (expressed as noise exposure levels  $L_{den}$  and  $L_{night}$ ). The action plan states what measures are being considered or are in the process of being implemented to prevent or reverse cases where the planned threshold is exceeded.

If significant developments occur, an action plan can be adjusted. In this context, the Aviation Act – and the EU Environmental Noise Directive – talk about reconsidering and, if necessary, adapting an action plan. The new noise situation and the resulting noise problem, noise objective and implementation of the Balanced Approach procedure counts as such a significant development. The action plan is supplemented by the latest noise objective pursued by the Cabinet in the vicinity of Schiphol Airport. Thus, the noise problem and noise objectives central to the Balanced Approach procedure are also set out in the Schiphol Action Plan 2018-2023.

<sup>15</sup> Decree of 4 July 2016 amending the Schiphol Airport Traffic Decree in connection with the offering of the possibility to bring forward and extend the period for the nighttime approach and departure procedures (Bulletin of Acts and Decrees 2016, 280)

<sup>16</sup> Decree of 19 September 2018 amending the Schiphol Airport Traffic Decree in connection with the determination of a maximum number of night flights at Schiphol Airport and amending the Aviation Competence Decree in connection with the postponed application of the requirements for glider, balloon and recreational aviation certification in EU Order 1178/2011 (Bulletin of Acts and Decrees 2018, 366)





This amendment was submitted for views in parallel with the Balanced Approach consultation. Interested parties were given the opportunity to submit views on the supplement to the Schiphol Action Plan 2018-2023 from 16 May 2023 to 26 June 2023. The submitted views that substantively relate to the current Balanced Approach procedure are addressed in this notification document.

Work is also underway on a new Schiphol Action Plan for the next five-year period. The new Schiphol Action Plan will be adopted no later than 18 July 2024. Although the current Schiphol Action Plan was originally valid until mid-2023, this has changed due to an amendment to the EU Environmental Noise Directive. This Environmental Noise Directive has been amended to postpone the date for the five-year review and revision cycle for action plans by one year. In line with the aforementioned amendment to the EU Directive, the date in the bill to amend the Aviation Act (Parliamentary Papers II 2021-2022, 36 168, nos 1-3) was moved from 18 July 2023 to 18 July 2024 at the latest.

### 3.3 Measures that have been implemented or proposed

A large number of measures have been taken since 2006 to reduce noise nuisance in the vicinity of Schiphol. These measures largely came from recommendations by the Alderstafel and the ORS; they were then worked out in detail in the Covenant on Nuisance Limitation and Development of Schiphol in the Medium Term<sup>17</sup>. For a full overview of the measures implemented, refer to the Schiphol Environmental Noise Action Plan 2008-2013<sup>18</sup>, the Schiphol Environmental Noise Action Plan 2013-2018<sup>19</sup> and the Schiphol Action Plan 2018-2023<sup>20</sup>.

At the request<sup>21</sup> of the Minister of Infrastructure and Water Management in March 2021, Schiphol Airport (in collaboration with other parties from the aviation sector) drew up a supplementary noise nuisance reduction plan, the Schiphol Noise Nuisance Reduction Implementation Plan. This plan is a package of 43 measures and studies of runway use, aircraft types, ground noise, flight paths and procedures for daytime and night flights. This nuisance abatement plan focuses on lowering the perceived level of nuisance irrespective of the number of aircraft movements and should therefore be seen in that context. See <https://minderhinderschiphol.nl/>. An overview of ongoing – and

partly or fully – realised measures can be found on the factsheet ‘Samen op weg naar minder hinder, update juni 2023’.

As per the Environmental Noise Directive, measures can be categorised into those aimed at:

1. Noise sources.
2. Spatial planning and management of space.
3. Operations and/or procedures.
4. Limitation of commercial exploitation.

A description of each type of measure is given below along with some illustrations of such measures as implemented since 2006. For a complete picture of the measures, refer to the action plans (see footnotes) and the website mentioned above, <https://minderhinderschiphol.nl>.

#### Measures at the source

Measures at the source focus on mitigating noise emissions from aircraft engines and are generic in nature. These measures have an effect on the surrounding environment as a whole. Fleet renewal is a measure at the source in which older aircraft types are replaced by newer types that are quieter, reducing the overall noise exposure. Source measures implemented by Schiphol include setting increased take-off and landing fees for aircraft during Schiphol’s nighttime period – for which the fee can rise to more than 300 per cent of that for the daytime period – and an increased fee for the noisier aircraft that can be up to 500 per cent greater than the fee for the quietest aircraft.

#### Spatial planning and management measures

Through the Schiphol Noise Insulation Programme (PROGIS), noise-sensitive objects – houses, schools and care centres – in the vicinity of Schiphol have been acoustically insulated. In the GIS-1, 2 and 3 programmes, the last of which was completed in 2012, some 13,000 premises were insulated at a cost of about €577 million<sup>22</sup>. To reduce noise nuisance further, the Cabinet has announced a new insulation programme, following up a parliamentary letter of 10 December 2021<sup>23</sup>. The internet consultation for the proposed Noise Insulation Regulations for Schiphol 2023 was completed on 5 February 2023.

There is also the Stichting Leefomgeving Schiphol (Schiphol Living Environment Foundation) in which the province of Noord-Holland, Schiphol Airport and the central

<sup>17</sup> Appendix to Parliamentary Paper 29665, no. 115

<sup>18</sup> Schiphol Environmental Noise Action Plan 2008-2013

<sup>19</sup> Actieplan omgevingslawaaai Schiphol 2013-2018

<sup>20</sup> Actieplan Schiphol 2018-2023

<sup>21</sup> Parliamentary Paper 31936, no. 646

<sup>22</sup> GIS policy evaluation

<sup>23</sup> Parliamentary Paper 29665, no. 418



government have each provided 20 million euros for the period 2008-2020 as what is termed a 'Livability Fund'. That money was spent on insulation, buying out owners, potentially followed by demolition. The Aerospace Memorandum announced what is called the Omgevingsfonds (Environment Fund), which will play a similar role in the coming years.

### Measures that are operational and procedural in nature

The bulk of the measures are operational or procedural in nature. One of the key measures is the NNHS (New Standards and Enforcement System for Schiphol). The core of this system is what is known as 'strict preferential runway use', meaning that the runways that cause the least noise nuisance in the surrounding area are used as much as possible. More information about this runway use at Schiphol can be found in chapter 2. Other measures include optimising the location of take-off flight paths (SIDs), applying quieter take-off procedures, higher approaches and fixed approach routes.

## 3.4 Mapping noise nuisance

Making noise annoyance explicit can be done in several ways:

- In accordance with mathematical models and statistical relationships – including Doc29 and dose-response relationships – expressing noise exposure in terms of degree of nuisance, supported by visual noise contours; this expresses noise exposure in objective units as much as possible and links it to categories of people who are affected.
- Using empirical social science research to take stock of the degree of noise nuisance by asking the people living in the vicinity who are affected; the perception of noise nuisance by those affected is expressed in the degree of nuisance experienced. Subjective perception thus leads through the research methods to a relatively objective inventory of how people themselves experience nuisance.

Calculation models, as explained below, sometimes lead to an underestimation of the impact of noise on the affected local residents. Studies focusing on how noise nuisance is actually experienced are, therefore, an important addition if carried out according to scientific standards. They are an indicator of the degree to which affected local residents themselves experience noise exposure. As a result of these kinds of surveys and the explanation of them by residents' organisations, it has become known which nuisance factors partly contribute to the local experience of nuisance, such as respite (rest periods), frequencies and peak noise. The

results of these kinds of studies are partly what prompted the Cabinet decision.

The mathematical models and methods are internationally aligned. Their greatest value is that making forecasts of expected noise after measures, etc. – and indirectly to it assumptions about the level of nuisance to be experienced – is made possible. They are indispensable for analysis and estimating the effects of measures. The reference (baseline) and all potential measures in this notification document have been measured against this yardstick and assessed in accordance with Doc29, as required by the Environmental Noise Directive.<sup>24</sup>

## 3.5 Current noise situation

The Alderstafel forum noted back in 2013<sup>25</sup> that the options for noise mitigation measures were becoming exhausted. Operational measures such as e.g. adjusting flight paths tend to displace noise nuisance rather than solve it: noise abatement in one area affects new people or worsens the burden on them in another area.

One recommendation made by the Alderstafel was linking Schiphol's growth to the environmental space created by implementing noise abatement measures. In practice, despite the noise abatement measures taken and the increased proportion of quieter aircraft, the number of residents experiencing severe noise nuisance has risen<sup>26</sup>, even when population growth is taken into account. This rise in noise nuisance is a direct consequence of the increased growth in the number of flights. As shown in the figure below, a decrease in severe noise nuisance has only been achieved in the years when there was a substantial drop in the number of flights due to the credit crunch and the coronavirus pandemic. This development in noise nuisance is also reflected in ILT reports, e.g. The State of Schiphol 2020<sup>27</sup> and The State of Schiphol 2021<sup>28</sup>. The graph

<sup>24</sup> The historical development in the present chapter – Figures 3.1, 3.2 and 3.3 – have been prepared using the Netherlands Calculation Model (NRM). No Doc29 for Schiphol is available for the pre-COVID period and it is important in this chapter to be able to identify a trend over a longer period. This is in accordance with Article 6 in the Environmental Noise Directive which refers to Directive 2002/49/EC (Annex II) and to current national legislation in force incorporating NRM. Reference to this directive can also be found in Appendix I, 1.3. Appendix II of the Environmental Noise Directive where it is indicated that there is a choice between national calculation methods with  $L_{den}/L_{night}$  or Doc29.

<sup>25</sup> Parliamentary Paper 29665, no. 190

<sup>26</sup> <https://www.clo.nl/indicatoren/nl2161-ernstige-hinder-en-ernstige-slaapverstoring-rond-schiphol>

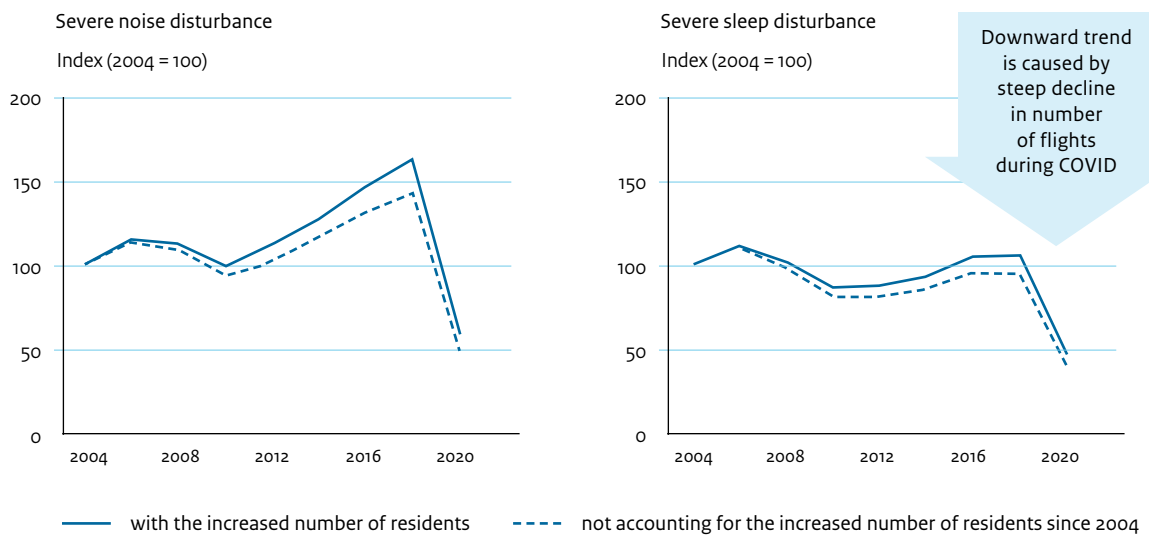
<sup>27</sup> De Staat van Schiphol 2020

<sup>28</sup> De Staat van Schiphol 2021



follows basically the same pattern as the trend in numbers of flights described in Chapter 1. Despite measures taken over the years to reduce nuisance and the airline fleet becoming quieter, the number of people seriously affected by noise around Schiphol has increased. Moreover, residents around Schiphol who experienced noise nuisance as early as 2004 have been exposed to an intensification of noise over the years.

It is important when interpreting the data on the following pages that the trend break that comes from both the traffic figures and noise exposure are due to the anomalous figures in the COVID period. The number of flights in the pre-Covid year 2019 was almost 500,000 flights.



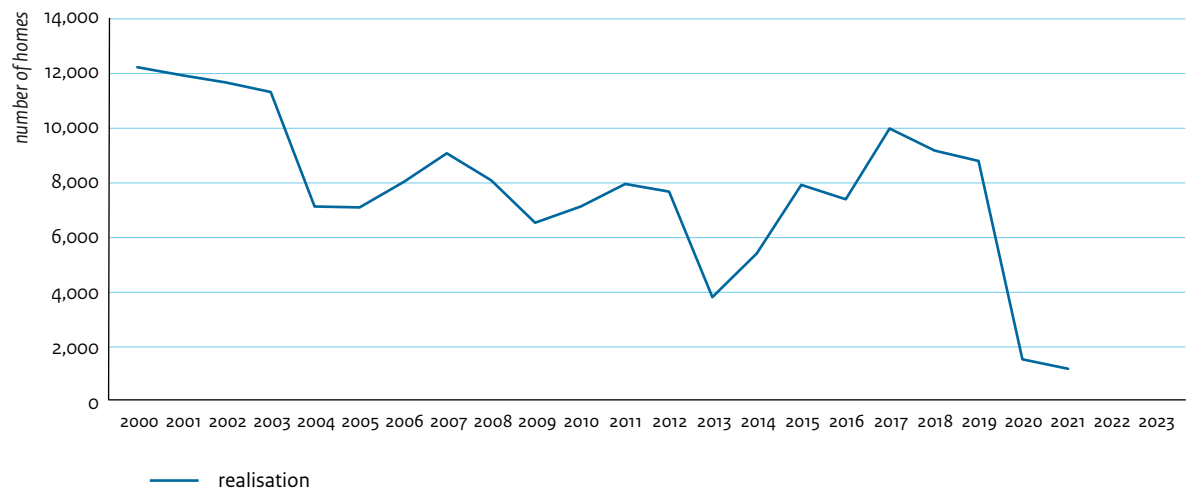
**Figure 3.1 Severe noise nuisance and sleep disturbance around Schiphol**

Source: NLR, CBS, PBL

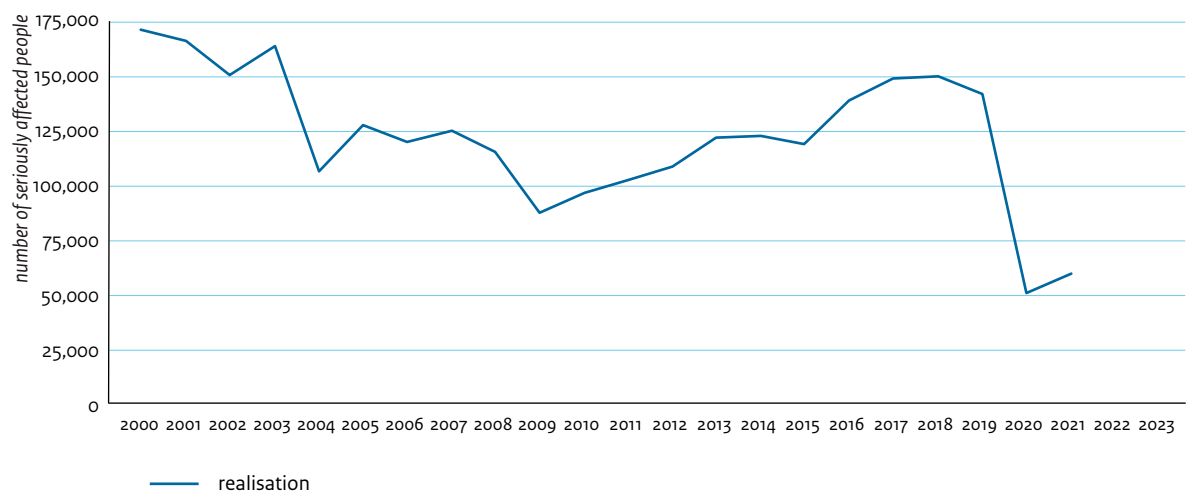


A similar picture can be seen in the annual reporting in the Usage Forecast for Schiphol, which includes the progression in the numbers of severely affected people and those whose sleep is severely disturbed. Between 2000 and 2004, the number of houses in the 58 dB(A)  $L_{den}$  contour and the number of highly annoyed people within the 48 dB(A)  $L_{den}$  contour decreased substantially. This was primarily because the Polder Runway was opened. That runway was created so

that flight paths over relatively thinly populated areas could be used, thereby reducing the noise nuisance for local residents overall. The first year in which the Polder Runway was in full operation was 2004. Since 2004, there has been an upward trend of these indicators. Due to the economic crisis in 2008/2010 and the COVID-19 pandemic, recognisable (temporary decreases) in noise exposure can be seen due to fewer flights from Schiphol Airport<sup>29</sup>.



**Figure 3.2** Development of the number of houses with a noise exposure of 58 dB(A)  $L_{den}$  or more  
Source: Usage Forecast for Schiphol



**Figure 3.3** Development of the number of seriously affected people with a noise exposure of 48 dB(A)  $L_{den}$  or more  
Source: Usage Forecast for Schiphol

<sup>29</sup> The evolution of noise exposure levels as shown in these two diagrams was determined for the Usage Forecast for Schiphol using the 2005 housing stock. This differs from how the noise target in Chapter 5 was determined, as that uses the more

recent housing stock parameters from 2021. These figures were also drawn up using the NRM determination method; the analysis in Chapter 5 onwards uses the European determination method, Doc29.





## Perceived noise nuisance is increasing

Alders concluded in his final recommendations in 2019 that a calculated reduction achieved in overall noise exposure levels does not mean that it is perceived as such by local residents. This is mainly caused by the fact that the noise nuisance mitigation achieved by the aviation sector through increasingly less noisy aircraft is barely perceptible (if at all) at the height at which the aircraft pass. Especially in what is termed the ‘inner area’, each individual overflying aircraft – including modern types that have lower noise emissions – produces a high volume of noise for local residents. Mr Alders calls this a paradox: Any noise reduction leads to a significant increase in traffic volume that goes hand in hand with increased nuisance in the ‘inner area’, while local residents do not perceive anything in terms of the nuisance reduction realised.

Population surveys<sup>30</sup> that have been carried out show that the perception of severe nuisance as a result of aircraft noise increased between 2016 and 2020. In 20 of the 31 municipalities around Schiphol, the numbers of local residents experiencing severe nuisance due to aircraft noise increased in 2020 compared to 2016, despite the decrease in air traffic due to the COVID-19 pandemic and the noise abatement measures mentioned above. These 31 municipalities include both some that are close to the airport and others that are relatively far away (e.g. Bodegraven-Reeuwijk and Laren). In all 31 municipalities included in that study, the absolute level of noise nuisance was higher than the average for the Netherlands (which is 3.7 per cent). In half the municipalities, the percentage of severe noise nuisance is above 10 per cent; in about a fifth of the municipalities, it is above 20 per cent. In Aalsmeer, as many as 40 per cent of residents aged between 18 and 64 experience severe noise nuisance from air traffic. Those are worrying levels. In terms of sleep disturbance, these measurements also give a serious picture. There are also high levels of sleep disturbance in all municipalities where there is severe noise nuisance. Compared to the national average, all the municipalities in the study have relatively high levels of people whose sleep is disturbed by air traffic. In more than a quarter of the municipalities surveyed, the proportion of people whose sleep is disturbed by air traffic exceeds 10 per cent (national average: 1.6 per cent). Sleep disturbance is also common outside the legally designated contours for the equivalence criteria (40 dB(A)  $L_{night}$ ). Health effects, partly caused by sleep disturbances, may include increased

blood pressure, hormonal changes, increased risk of cardiovascular disease, etc.<sup>31</sup>. The World Health Organization (WHO)<sup>32</sup>, and consequently also the National Institute for Public Health and the Environment (RIVM) and the Regional Medical Assistance Organisation (GGD GHOR), point to the negative effects on health of noise nuisance and disturbed sleep. The National Institute for Public Health and the Environment (RIVM) surveyed residents living near 14 airports<sup>33</sup>, including Schiphol, about how much noise they were exposed to and how this affected the level of noise nuisance and sleep disturbance. The picture that emerges is that serious noise nuisance has increased considerably since 2002.

Increased levels of perceived nuisance are also reflected in the number of noise nuisance reports made to the Schiphol Residents’ Contact Centre (Bewonersaanspreekpunt Schiphol, BAS)<sup>34</sup>. The number of reports increases every year, both for local residents within the  $L_{den}$  contour for 48 dB(A) and for those outside it<sup>35</sup>.

## Conclusion

In his final advice<sup>36</sup> to the Minister in 2019, Alders provided an overview of 10 years of nuisance abatement. He lists, among other things, the measures realised with regard to flight operations and procedures such as route changes, runway use and night procedures. For each type of nuisance-reducing measure – where possible – the extent of the reduction in the number of people affected is indicated. Despite all the measures taken – which resulted in an estimated nuisance reduction of at least 12.3% – over the entire period 2008-2017, the number of people affected in the outer area increased, as did the number of houses in the inner area. This is mainly due to the increase in aircraft movements. All the gains from nuisance abatement have been ‘used’ for volume growth. Previous studies have shown that without implementing the nuisance abatement measures, the number of people affected would still be significantly higher at this volume of traffic.

<sup>30</sup> GGD GHOR, 2022, Perceptiestudie geluidsoverlast en slaapverstoring door luchtvaart in 2020 (Perception study of noise nuisance and sleep disruption caused by aviation in 2020) – Belevingsonderzoek geluidshinder in slaapverstoring luchtvaart 2020 (Perception study of noise nuisance in sleep disruption caused by aviation in 2020)

<sup>31</sup> SEO Economic Research – Economic effects Schiphol (2017) pg. 17

<sup>32</sup> World Health Organization Regional Office for Europe, Environmental noise guidelines for the European region. 2018, WHO Regional Office for Europe: Copenhagen, Denmark.

<sup>33</sup> RIVM, Relaties vliegtuiggeluid – hinder en slaapverstoring 2020 (Relationships between aircraft noise and nuisance/sleep disruption 2020). Civiele en militaire vliegvelden in Nederland (Civil and military airfields in the Netherlands)

<sup>34</sup> <https://bezoekbas.nl/>

<sup>35</sup> See Staat van Schiphol 2020 (The State of Schiphol 2020), p. 62

<sup>36</sup> Advies Toekomstbestendig NNHS & Advies Middellange termijnoplossing “wonen en vliegen” (Advice for Future-proof NNHS & Advice for Medium-term solution “living and flying”)



However, all indicators of noise nuisance, despite efforts to reduce it, still show an upward trend. The perception of aircraft noise by local residents changes over the years. Noise seems to be perceived as an increasing nuisance. In addition, there seems to be an asymmetry, whereby an increase in noise is perceived as more disturbing than an equally large decrease. This means that the impact of noise reduction measures on perceived noise nuisance is probably smaller than calculated by the models.

A lot of hard work was done by all stakeholders at various, successive consultation platforms and much was achieved. However, more of the same is not going to enable the desired trend break, see also chapter 1. More is needed than has been done to date. The initiation of this Balanced Approach procedure is not the beginning of alignment and exploration of measures but was initiated by the observation of the inevitability of some form of operating restriction.

The above analysis of the noise situation, and the GGD's repeated warning of the negative health effects of noise nuisance and sleep disturbance caused by aviation, describe the Noise Problem referred to in Article 5 of the Environmental Noise Directive. They underline the need for a significant and rapid step in reducing noise nuisance around Schiphol. In Chapter 5, the need to turn the upward trend in noise nuisance into a downward one translates into a concrete noise objective for reducing exposure in the short term. This is followed by measures that enable attainment of the noise objective by November 2024.

# 4 Consultation in the Balanced Approach procedure

The consultation was considered very valuable by the ministry. The following is a general reflection on the stakeholder responses received. Appendices 1, 2 and 3 discuss in detail the responses obtained from the consultation and its impact on the measures finally chosen.

## General consideration

From the start of the Balanced Approach process, there has been widespread attention and engagement from stakeholders. The ministry appreciates the intensive engagement of individuals, governments (international, provincial, municipalities) airlines, Schiphol Airport and organisations representing entrepreneurs, local residents, nature/environmental organisations during the process. This engagement is evidenced by participation in the technical consultations and information meetings prior to and during the consultation period, but also, of course, and most importantly, by the responses submitted. These reactions and the open communication about views, considerations and expectations, enabled the ministry to conduct the procedure with care and weigh up the broad interests. In doing so, within the limits of safety and feasibility of measures, the ministry explicitly strives for support and the sustainability of measures that contribute to the reduction in noise nuisance.

The responses have been carefully studied in recent months. All in all, a large number of responses were submitted, in addition to concrete proposed alternative measures, sending important signals. Local authorities – municipalities and provinces -, local residents, residents' organisations and nature/environmental organisations have emphasised the noise nuisance, with (further) operating restrictions as the outcome of this procedure being supported. The responses sent in, as well as ongoing discussions with local residents, show that the problem and the need for measures that reduce noise at night is great. Attention is also drawn to peak moments, frequency and rest periods in the experiencing of noise. Local residents and nature/environmental organisations also point to the lack of insight into the actual effect of the presented measures, as it will eventually be experienced in practice.

Especially from the aviation sector, it is regularly mentioned that the Balanced Approach procedure prescribes that an operating restriction should be a last resort. A pre-stated number of 440,000 flight movements would give the impression of target-oriented reasoning instead of sequential analysis, problem-solving and solution-seeking. The Environmental Noise Directive states that operating restrictions can be considered as a 'last resort' when measures in the other categories are insufficient in

achieving the noise objective. This principle has been fully maintained in the composition of the combination of measures being notified and has also applied in the cost-effectiveness calculations.

At the same time, many concerns and criticisms have been raised from the aviation sector about the determination of the noise objective in relation to the deadline set for realisation of the measures to be taken by November 2024. This too, combined with new information on potential measures after 2024, has led to new insights regarding the proportionality of the envisaged timeframe for determining the noise objective.

The ministry explicitly called for alternative measures during the consultation. This resulted in a number of concrete alternative measures, many of which were elaborated and testify to invested time and effort. The willingness to provide additional information to substantiate these alternative measures helped enormously in analysing them. The submitted alternative measures were assessed for – among other things – feasibility after which, in accordance with the Environmental Noise Directive, they were tested for cost-effectiveness. The same method of assessment was used that applied in selecting the measures submitted in the consultation document. Two of these are on the final shortlist.

The combination of the above observations regarding time schedule and promising measures that do not fall within the realisation date of November 2024 led to a proposal for phased realisation of the noise objective. This is explained in Chapter 8. All this leads to the proposal to maintain the noise objective of minus 20 per cent in the 24-hour period and minus 15 per cent at night, but to choose to realise about 15 per cent of it as a first step (by November 2024) and realise the remaining 5 per cent in the 24-hour period in a subsequent phase.

This approach, the ministry believes, will do justice to the interests of both local residents and the aviation industry. A major step is being taken in the short term to reduce noise nuisance while at the same time allowing for the realisation of promising proposals that were made during the

consultation but which cannot be included in the present notification.

From the proposal for this phased realisation of the noise objective and the proposed reduction in the number of flight movements, it can be deduced that there was no question of a goal or false reasoning.

It is also notable that the launch of the Balanced Approach procedure – and the discussions within this framework – have set in motion initiatives that can broadly contribute to a new balance in the various interests surrounding Schiphol. Typical of this is the 8-point plan presented by Schiphol Airport, the ambition of which aligns well with the ministry's objectives. Its announcement has been well received and can count on a lot of support from local residents, local authorities and environmental/nature organisations. The measures in the 8-point plan submitted by Schiphol in response to the Balanced Approach consultation and which have a direct relationship with reducing noise nuisance have been assessed as alternative measures. After careful consideration, the ministry has concluded that these are appealing and interesting proposals worth further elaboration and consideration. However, the exact implications of these plans are not yet known and they cannot be implemented before November 2024. Unfortunately, these alternative plans cannot be included within the current Balanced Approach procedure, partly for this reason.

### **Details of the Balanced Approach procedure followed and the consultation responses**

*Appendix 1* shows how the Balanced Approach procedure was implemented. *Appendix 2* gives a reaction to the main points of the consultation responses. In each theme, an explanation is given of how the ministry dealt with the comments or suggestions made in the responses. There is also an overview of alternative measures that were not shortlisted, including explanations. *Appendix 3* ranks the alternative measures and suggestions distilled from the responses and includes comments from the ministry. *Annex IV* contains an independent research firm's analysis of all the responses to the consultation document.

# 5

## Noise objective

It was stated in Chapters 1 and 3 that there is an urgent need for a substantial reduction in noise nuisance in the short term. From that point on, further continuous reductions are needed in the noise nuisance. The efforts made to date to mitigate such nuisance have not, on balance, had sufficient effect. The same can be expected for the implementation of the already planned noise abatement measures, which have been announced by the aviation industry to be implemented in the short term.

The Environmental Noise Directive stipulates that noise reduction objectives that may require operational restrictions to be imposed should be explicitly described. The noise objective for the short term is described below. In addition, a broad outline is given of the longer-term objective.

### 5.1 Guiding principles for the noise objective

#### The guiding principles in determining the short-term noise objective

Reducing noise exposure to local residents has been given a high priority by the Cabinet, which is why November 2024, the start of the 2025 operating year, has been chosen as the realisation date. This is because a significant step needs to

be taken in the short term. This noise objective is an intermediate phase en route to a new system that enables a focus on the effects of noise.

The noise objective for the short term has been quantified as a percentage reduction in the noise for various categories of groups affected. This choice was made because a percentage reduction is a measurable real-world figure for the government's goal of reducing noise nuisance in the short term. The percentages show that the first step must lead to a significant improvement for local residents. The percentages also require a reference situation (baseline) to be defined with specific indicators and scores. These numbers allow more objective monitoring of the effects and progress, rather than purely qualitative monitoring.

The reduction is a cut relative to the situation that would apply in November 2024 if no measures were taken. The situation in 2024 without measures is the baseline situation against which measures are assessed as to their cost-effectiveness and whether they achieve the objective. Specific targets have been included for decreasing noise nuisance at night.

The baseline takes into account the implementation of noise abatement measures announced by the aviation industry to be implemented by November 2024. The same



applies to the autonomous progress of fleet renewal at the airport. After all, this autonomous development will take place regardless of the step announced by the Dutch government to impose an upper limit on environmental effects.

This allows a pure comparison of the noise reduction and cost-effectiveness of measures. Indeed, it is the delta between the situation where measures are implemented compared to the situation where these measures are not.

## Indicators

The criteria and indicators that have been used are already incorporated in the policy and regulations in the Netherlands<sup>37</sup>. The quantitative objective for the short term comprises a target for noise in a 24-hour period and a specific target for nighttime. Noise nuisance from night flights, e.g. as sleep disturbance, can have different health impacts to noise nuisance during the day. The idea is to reduce the noise exposure both close to the airport (termed the 'inner area') and somewhat further away, termed the 'outer area'.

The inner area is defined as the area within the 58 dB  $L_{den}$  contour for the noise over a 24-hour period and the 48 dB  $L_{night}$  contour for the noise at night. The outer area is defined as the area beyond the inner area and within the 48 dB  $L_{den}$  contour for noise over a 24-hour period and the 40 dB  $L_{night}$  contour for noise at night. Objectives have been defined for both the 24-hour period and the nighttime period.

The indicators used to express the degree of noise nuisance are:

- The number of houses within the 58 dB(A)  $L_{den}$  contour
- The number of highly annoyed people within the 48 dB(A)  $L_{den}$  contour
- The number of houses within the 48 dB(A)  $L_{night}$  contour
- The number of severely sleep disturbed people within the 40 dB(A)  $L_{night}$  contour.

The calculations use the European method for determining the noise, known as DOC29. This is a model calculation of the noise exposure rather than a measured noise exposure. This is in line with the approach used in policy for expressing noise exposure.

<sup>37</sup> These indicators and geographical contours are already incorporated in policy and regulations in the Netherlands as the criteria for equivalent protection. For information purposes, the underlying studies also express the effect of measures in terms of the geographical contours that are prescribed in the Environmental Noise Directive for the four-yearly report on the change in the noise in the Schiphol Action Plan.

## 5.2 Baseline

An objective is accompanied by a reference to indicate the baseline situation against which the objective is formulated. To do justice to the effects of autonomous developments and the measures that are already scheduled to be implemented, they are incorporated in the baseline. After all, this is necessary to determine the effects of the new measures as accurately as possible. The Environmental Noise Directive (see Annex I) also stipulates that a forecast must be made that includes measures that are already planned but excludes the additional measures. The baseline is therefore based on the traffic flow and the noise exposure impact – calculated with Doc29 – corresponding to the situation in November 2024, namely 500,000 flight movements for commercial flights of which 32,000 are at night. The same baseline is used for the specific study of the nighttime period. The starting point for the underlying traffic scenario in the baseline situation is the Usage Forecast for Schiphol for the operating year 2023, with supply, fleet and handling of 495,485 aircraft movements, of which 31,300 were at night. This scenario has been scaled up to the stated numbers of 500,000 aircraft movements, of which 32,000 are at night. The reference takes account of the autonomous progress in fleet renewal up to November 2024, and the already announced measures for increased use of the continuous descent approach (whereby approaching aircraft descend slowly in a continuous movement), increased runway capacity and the more frequent use of reduced landing flaps which must be operational by November 2024. The reduction in noise exposure established in the Noise Objective is in addition to the reduction based on the described autonomous developments and measures already announced. A detailed description of the assumptions and Doc29 compliance can be found in Bureau To70's Annex in the consultation document and in Appendix 2 of this notification document.

The noise exposure and noise nuisance for the baseline situation in November 2024, without additional measures, are shown in the table below.

The same Annex shows which traffic scenario is used in the calculations.

**Table 5.1 Noise exposure and noise nuisance in the baseline – November 2024**

Indicator	Residential	People
The number of houses within the 58 dB(A) $L_{den}$ contour	7,081	
The number of highly annoyed people within the 48 dB(A) $L_{den}$ contour		113,862
The number of houses within the 48 dB(A) $L_{night}$ contour	5,685	
The number of severely sleep disturbed people within the 40 dB(A) $L_{night}$ contour		24,365

\* Numbers based on housing stock in 2021. Source: To70 (2023)

## 5.3 Noise objective

### Noise objective night and 24-hour

The noise objective is expressed in percentages relative to the baseline presented in the consultation document.

**Table 5.2 Noise objective compared to the baseline**

Indicator	Residential	People
The number of houses within 58 dB(A) $L_{den}$ contour	minus 20 per cent	
The number of highly annoyed people within the 48 dB(A) $L_{den}$ contour		minus 20 per cent
The number of houses within the 48 dB(A) $L_{night}$ <sup>38</sup> contour	minus 15 per cent	
The number of severely sleep disturbed people within the 40 dB(A) $L_{night}$ contour		minus 15 per cent

The above noise objective remains intact, but there is phased realisation. The reason has been briefly touched upon in the previous chapter. Elaboration of the measures to be notified is done in Chapter 8.

### Objective for the future

As yet, the longer-term objective is a qualitative one, namely the continuous reduction of noise nuisance. This will require a new system of noise standards to be developed. Such a new system is a precondition for objective and predictable reduction in noise exposure, including periodic updating of noise standards. When making decisions about introducing these standards, the extent and pace at which noise nuisance will have to be reduced will be considered; this will then be factored into the process of defining and enforcing the standards.

<sup>38</sup> The noise exposure in  $L_{night}$  is incorporated into the noise exposure  $L_{den}$ .  $L_{den}$  stands for Day/Evening/Night. The effect of measures that have an impact on  $L_{night}$  therefore also affect  $L_{den}$ . The reverse is not true.



# 6

## Definitive shortlist with achievable measures

This chapter contains the shortlist with measures that meet the selection criteria such as those that were also utilised in the selection process of the measures in the consultation document. The shortlist is comprised of – reconsidered – measures from the shortlist taken from the consultation document and alternative measures that have been provided in the responses in the consultation. Being included on the shortlist means that the respective measure can in principle provide a contribution in the attainment of the noise objective for November 2024.

The measures on the shortlist are assessed in regard to cost-effectiveness in chapter 7. Based on the outcome, the chosen combination of measures that will form the package to be notified will subsequently be presented in chapter 8.

### 6.1 Criteria shortlist

The consultation document provides selection criteria, which are used to condense a so-called longlist with potential measures into a shortlist. These are the following selection criteria:

- Safety → the measure should not introduce a safety risk.
- Achievability → the measure should have achieved its effect by November 2024.

- Compliance with legislation → the measure should not conflict with European or national legislation.
- Reliability of the operation → the measure should not significantly decrease the reliability of the operation.
- Distribution of nuisance → the measure should not simply shift nuisance to other areas around the airport.
- Quality of the network connectivity → the measure should not result in an irreversible negative effect on the quality of the network connectivity.
- Emissions → the measure should not achieve a reduction in noise at the expense of a significant increase in emissions.
- Modelling → it must be possible to determine the effect of the measure using ECAC Doc29 noise modelling as implemented for Schiphol Airport.

During the assessment of the measures, this in each case has been the guideline with which the measures have been scored. The score of the measures on the original longlist can be found in the consultation document (Annex I) and the score of the measures and the suggestions of the submitted responses are featured in annex 3 of this notification document.

## 6.2 Review of the measures on the shortlist in the consultation document

The measures on the shortlist of the consultation document have been reviewed critically on the basis of the received responses. Air Traffic Control The Netherlands (Luchtverkeersleiding Nederland) and the ILT have reviewed the measures in the consultation document in regard to safety and operational feasibility. See respectively the annexes IV, V, VI for the complete reviews and chapter 9 for the summaries.

Based on the outcomes of the reviews, the ministry has concluded that the four measures, which were part of the shortlist of the consultation document, are omitted. The complete shortlist with the measures from the consultation document and the outcome of the aforementioned review have been incorporated in the table below. The review has been performed in regard to the individual measures. A more extensive explanation is provided below the table on the 4 measures that are being removed from the shortlist.

**Table 6.1 Review of the measures on the shortlist**

Measure on the shortlist of the consultation document	Outcome	Explanation (if omitted)
Encourage airlines to use quieter aircraft by means of differentiation of airport charges	X	Omitted. The measure cannot be implemented by November 2024. The airport charges are determined in a three-year-cycle. The next following possibility of changing the airport charges is in April 2025. Moreover, airport charges must be cost-effective. Furthermore, the effectiveness – does it actually lead to a reduction of the noise levels – must be evaluated in further detail.
Extension of the night regime <sup>39</sup> (evening + morning)	X	Omitted. The feasibility assessment by LVNL has shown that the peaks in the evening and morning as they exist now, are too large to be processed within the framework of the night regime.
Reduction of the usage of the Buitenveldert runway	X	Omitted. LVNL and the ILT indicate that the proposed measure corresponds with the current operation, in which the Buitenveldert runway is only used as the least preferable runway and is only used when this is unavoidable. Therefore, there is little difference with the current utilisation of this runway and thus no significant effect on the reduction of the noise nuisance.
Ban on the noisiest aircraft	X	The exclusion of noisy aircraft does not seem to be feasible by November 2024, as this measure cannot be implemented with a new consultation round. Due to the required additional consultation round, this measure cannot be legally determined by November 2024.
Reduction of the usage of the secondary runways	V	Placed on the definitive shortlist
Reduction of the capacity to 440,000 flights in total / 29,000 night flights	V	Placed on the definitive shortlist
<b>Differentiation of night reduction</b>		
Reduce capacity at night to 29,000	V	Placed on the definitive shortlist
Reduce capacity at night to 27,000	V	Placed on the definitive shortlist
Reduce capacity at night to 25,000	V	Placed on the definitive shortlist

<sup>39</sup> During the night, Schiphol uses only two preferential runways (Kaagbaan and Polder Runways), compared to the simultaneous use of three or four runways in peak hours during the day (see chapter 2 for the description of runway use and preferential runway use). Extending the night period would mean that only the two noise preferential runways would be in use for much of the day.



The stimulation of the use of quieter aircraft by means of the differentiation of airport charges is focused on reducing the noise nuisance by encouraging airlines to replace noisier types of aircraft with types that are quieter. With regard to the rate differentiation in the airport charges, it applies that the overall airport charges collected by Schiphol must be cost-effective. This means that an increase of the costs for a specific noise category must be accompanied by a reduction of one or more other categories. Schiphol determines the airport charges following the consultation with all airlines that fly to and from Schiphol. Since 2021, airlines pay 180 percent of the basic rate for the noisiest and most polluting aircraft. They pay 45 percent of the basic rate for the quietest and cleanest aircraft. Space for further differentiation is present. The expectation is that the differentiation will not be of such an extent that a sufficiently stimulating effect towards the airlines will be achieved. Furthermore – and more importantly – it applies that the rates are valid for a period of three years. The current airport charges apply up to and including 31 March 2025. This means that they cannot be changed before November 2024.

For the extension of the night regime, in which the sole usage of two noise-preferential runways is expanded to a wider time slot than in the current situation, LVNL indicates in its feasibility assessment test that this can in principle be implemented, provided a number of prerequisites are met. The prerequisites are so far-reaching for the operation that the negative effects of the extending of the night regime do not offset the potential positive effects. Negative effects are among others that interruptions and delays will last longer. Moreover, this will lead to an increase in CO<sub>2</sub> emissions as a result of longer flight paths and having to hold air traffic to a greater extent.

For the reduction of the use of the Buitenveldert runway, LVNL and ILT indicate that this measure corresponds with the current operation, in which the Buitenveldert runway is only used when there are clear operational reasons for this. As a result, this measure does not provide an additional noise reduction and therefore has not been included in the definitive shortlist. This approach is in line with the regulations for the strict preferential runway use, in which the Buitenveldert runway is assigned as the least preferential runway and thus is only used when this is operationally necessary.

The exclusion of noisy aircraft includes the increasing of the permitted limits to -12EPNdB margin and -13EPNdB margin within which aircraft may be excluded from the airport. EPNdB is an abbreviation of “effective perceived noise in decibels” and is an international unit for the specification of the amount of noise that an aircraft makes during a movement. Therefore, this measure is aimed at the exclusion of noisy aircraft that deviate too much from the standard as determined in the Chicago Convention with regard to international civil aviation. This measure is in regard to a commercial operational restriction and this measure would have had to be consulted on the basis of the Environmental Noise Directive and air transport treaties with the United States of America. Due to the required additional consultation round, this measure cannot be legally determined by November 2024.

### 6.3 Added measures from the consultation responses

In the consultation, alternative measures have been provided by different parties, which can contribute to the achieving of the noise objective. Of the submitted measures that comply with the stated selection criteria, two have been included in the shortlist.

**Table 6.2 New measures on the shortlist**

New measures on the shortlist	
Fleet renewal	Placed on the definitive shortlist
Use of quieter aircraft during nighttime period	Placed on the definitive shortlist

Thus, various submitted measures have been omitted. This is due to the fact that these measures lead to a relocation of nuisance in the area surrounding Schiphol or cannot be implemented on time. Furthermore, it has been established for a number of measures that these are favourable. However, these do not fit in the current procedure or there are no legal possibilities for securing the specific measures. It is shown in appendence 2 and in greater detail in appendence 3 which measures or suggestions have been submitted and how these are assessed, which have not been added to the shortlist.



## 6.4 Definitive shortlist with achievable measures

The table below features the definitive shortlist followed by a meaningful description of each measure.

**Table 6.3 Definitive shortlist with measures**

Definitive shortlist with measures
Generic
Fleet renewal
Reduction of the usage of the secondary runways
Cap on the number of annual movements
Specifically regarding the night
Use of quieter aircraft during nighttime period
Cap on the number of movements at night
<ul style="list-style-type: none"> <li>• 29,000 flights</li> <li>• 27,000 flights</li> <li>• 25,000 flights</li> </ul>

### Measure: Fleet renewal

The reference (baseline) makes the assumption of an autonomous fleet renewal. It has been stated in the submitted responses in the consultation that the fleet renewal could happen faster than the speed that follows from the assumptions that have been utilised in the consultation document. This added measure contains the fleet renewal as proposed by an airline. In doing so, the fleet renewal has been taken into account that will occur by November 2024. Fleet renewal has not been taken into consideration for the operating year 2024-2025. The reason for this is that among others there is no certainty that quieter aircraft will actually be deployed. The delayed delivery by manufacturers would result in the failure of the intended reduction of the noise nuisance from being achieved.

The consultancy bureau To70 has modelled the fleet renewal that is specified in the measure for three variations to calculate the effect. For more information, please refer to paragraph 7.2 of this document and Annex II with the addendum by To70.

### Measure: Reduction of the usage of the secondary runways

The runways at Schiphol can be characterised as primary or secondary runways. The primary runways are preferred as they minimise the overall number of highly affected people. Minimising the use of secondary runways therefore reduces the noise nuisance in relatively densely populated areas by shifting arrivals and departures to the primary runways. A scenario has therefore been defined in which the threshold for utilising these secondary runways is increased. Even greater use of primary runways without increasing capacity of these runways will result in delays and other operational inefficiencies. These will be considered during the assessment of the cost-effectiveness of this measure.

### Measure: Cap on the number of annual movements

Limiting the overall capacity of Schiphol is a measure that falls under Pillar 4 – operational restrictions – of the Balanced Approach. The measure that has been analysed is a reduction to 440,000 movements annually and follows the “Hoofdlijnenbrief Schiphol” (Schiphol Outline Paper), see chapter 1. The reduction of the annual capacity from 500,000 movements to 440,000 (minus 12 percent) would moreover have a relatively large effect on noise nuisance, as the least noise-preferential runways are required less often.

### Measure (night): The use of quieter aircraft during nighttime period

The measure is in regard to the optimisation of the fleet usage by means of the use of quieter aircraft during nighttime period. Specifically, this means that a number of noisier aircraft are removed from the night and are switched with aircraft that are quieter. The measure is calculated on feasibility of implementation by November 2024 and contains two elements:

1. The transfer of among others wide-body aircraft from the night to the day and the filling of that slot with a narrow-body aircraft.
2. The replacement of a noisier wide-body aircraft by a quieter wide-body aircraft.





### **Measure (night): Cap on the number of movements at night**

Night flights lead to sleep disturbance, which can have an impact on health. Reducing the number of night flights could therefore be an effective way to reduce the noise nuisance around the airport. A reduction of noise in the night also affects the noise objective for the indicators in  $L_{\text{night}}$ . This measure falls under Pillar 4 of the Balanced Approach (operating restrictions). The measure encompasses the reduction of the annually permitted capacity in the night from 32,000 to 29,000 movements. Two variants are a maximum of 27,000 and 25,000 movements respectively. The variants have been included to explore which impact the reductions in the night have on the cost-effectiveness of the measures.

# 7

## Noise impact and cost-effectiveness

This chapter presents the results of the noise impact analyses and the cost-effectiveness of the measures on the shortlist. The chapter starts with a brief introduction to the approach used to derive the results. Then the results of the analysis are presented.

Furthermore, a qualitative assessment of the expected impact of the measures on broad welfare aspects that are specifically attributed to mobility is performed in conformity with the elaboration by “Planbureau van de Leefomgeving” (Netherlands Environmental Assessment Agency)<sup>40</sup>.

### 7.1 Approach

#### Determining the noise impact

The noise impact was determined for each of the measures on the definitive shortlist. This is expressed as the contribution of the measure to the achievement of the noise objective (the four indicators). Each measure was turned into an operational scenario for the year 2024, which was analysed using the Doc29 modelling tool. The result is eventually assessed in regard to the number of houses, highly annoyed people or people whose sleep is severely

disturbed within the relevant noise contour lines for the noise objective (see chapter 4). This result is then compared with the baseline to determine the relative effect of the measure.

#### Determining the cost-effectiveness

Subsequently, the cost-effectiveness was determined for each of the measures on the definitive shortlist.

The operational scenario that is used for the determination of the noise nuisance is input for the estimation of the costs associated with a measure. The noise nuisance is subsequently used for the calculation of the cost-effectiveness. In more detail:

- An assessment of the costs of the measures has been made for four stakeholder categories:
  - Passengers and air freight sector: Changes in consumer surplus / generalised travel costs (ticket price, travel time)
  - Airlines, airport and ANSP: Changes in producer surplus / profits (surplus profits)
  - Other companies: Changes in the productivity of companies (agglomeration effects)
  - Government: Changes in tax revenues and expenditures (e.g. unemployment benefits)
  - Society: Changes in health, safety and climate impact.

<sup>40</sup> Broad welfare and mobility | PBL Planbureau voor de Leefomgeving

- In addition, the impact of each measure on gross direct and indirect (backward) employment and value added has been estimated.
- The assessment was quantitative wherever possible. A few cost categories, however, have only been determined qualitatively. The following cost categories were assessed quantitatively: i) operational costs for airlines, ii) costs for passengers and freight, by valuing their generalised travel costs, government costs (additional allowances and changes in tax revenues), climate and emission costs ( $\text{NO}_x$ ,  $\text{PM}_{10}$ ) and the regional economic impact (agglomeration effect)<sup>41</sup>.
- The analysis was carried out using a cross-border perspective to acknowledge the impact on non-Dutch actors. This deviates from traditional cost-benefit studies in the Netherlands in which a national perspective is applied.
- Redistribution effects are not calculated or estimated. These are effects where the costs for one actor are a benefit for another actor.
- The total costs of a measure, i.e. the sum of the costs for airlines and passengers/freight, government and society, are divided by the noise impact of that same measure, to arrive at the costs per unit reduction in affected houses / highly annoyed people / people whose sleep is severely disturbed.
- With these values, the comparison of measures can be made.

The table should then read as follows:

- Implementing example measure 1 leads to a 5.2% reduction of the number of houses within the 58 dB  $L_{den}$  contour line compared to the baseline.
- It also results in a reduction of 4.5% of the number of highly annoyed people within the 48 dB  $L_{den}$  contour.
- For both indicators, the noise objective is to achieve a 20% reduction. Example measure 1 in itself is thus insufficient to meet the objective.
- Example measure 1 has associated cost-effectiveness figures. The costs for reducing the number of houses within the 58 dB  $L_{den}$  contour by one home amount to €311,000. The costs for reducing the number of highly annoyed people within the 48 dB  $L_{den}$  contour by one person amount to €25,000.
- Example measure 2 makes a smaller contribution to the noise objective than the first measure: 1.1% reduction in the houses within the 58 dB  $L_{den}$  contour and 4.1% reduction in the number of highly annoyed people within the 48 dB  $L_{den}$  contour.
- However, the cost-effectiveness of this second measure is better than measure 1 for the  $L_{den}$  indicators of the noise objective, but not for the  $L_{night}$  indicators. After all, the costs of this measure are €105,000 per house that are no longer within the 58 dB contour and €17,000 per person that are no longer within the 48 dB  $L_{den}$  contour.
- Measure 2 is thus more cost-effective than measure 1 for the  $L_{den}$  indicators of the objective. Neither of the two example measures would achieve the objective target on their own.
- A similar interpretation of the results can be made for the indicators related to the night period.

## Interpretation

As expressed above, the results for noise and cost-effectiveness will be expressed as an effect relative to the baseline. This will be done for the four indicators of the noise objective. An example of the kind of results obtained is as follows. Note: The numbers in the table are fictitious and for illustrative purposes only.

**Table 6.1 Example table**

Noise objective	Houses within 58 dB $L_{den}$		Highly annoyed people within 48 dB $L_{den}$		Houses within 48 dB $L_{night}$		Severely sleep disturbed people within 40 dB $L_{night}$	
	Impact	CE (€)	Impact	CE (€)	Impact	CE (€)	Impact	CE (€)
Example measure 1	-5.2%	-311,000	-4.5%	-25,000	-1.9%	-369,000	-1.6%	-421,000
Example measure 2	-1.1%	-105,000	-4.1%	-17,000	-0.7%	-481,000	-0.3%	-507,000

CE = cost-effectiveness

<sup>41</sup> The assessment of costs has been made taking the Dutch guidelines for cost-benefit analyses in the domain of aviation into account: SEO, 2021 et al., Werkwijzer luchtvaartspecifieke MKBA's.



## 7.2 Results of the assessment of measures

The key results of the assessment of the measures, for both the noise impact and the cost-effectiveness, are shown in the following table. More detail is provided in Annex II and III respectively.

**Table 7.2 Contribution of measures to noise objective and cost-effectiveness**

Noise objective	Houses within 58 dB L <sub>den</sub>		Highly annoyed people within 48 dB L <sub>den</sub>		Houses within 48 dB L <sub>night</sub>		Severely sleep disturbed people within 40 dB L <sub>night</sub>	
	Impact	CE (€)	Impact	CE (€)	Impact	CE (€)	Impact	CE (€)
Fleet renewal variation 1	-0.4%	-395,838.-	0.2%		-0.9%	-219,129.-	-0.3%	-153,386.-
Fleet renewal variation 2	0.9%		1.3%		-0.7%	-498,963.-	0.0%	
Fleet renewal variation 3	0.1%		0.7%		-0.8%	-341,556.-	-0.2%	-318,777.-
Minimisation of the usage of secondary runways	-2.6%	- 59,486.-	-2.9%	- 3,416.-	0.0%	N/A	0.0%	N/A
Reduction of the capacity in a 24-hour period (440k with 32k night flights)	-14.0%	-891,747.-	-13.9%	-55,708.-	0.0%		0.0%	
Reduction of the capacity in a 24-hour period (440k with 29k night flights)	-15.3%	-832,450.-	-16.7%	-47,603.-	-13.2%	-1,202,181.-	-10.8%	-344,591.-
The use of quieter aircraft during nighttime period	-3.5%	- 33,081.-	-2.2%	-3,273.-	-14.4%	- 10,015.-	-9.2%	- 3,657.-
Reduction of the number of flights at night 29k	-3.4%	-90,351.-	-2.8%	-6,874.-	-13.2%	-28,715.-	-10.8%	-8,231.-
Reduction of the number of flights at night 27k	-4.9%	-113,053.-	-4.6%	-7,491.-	-22.2%	-30,955.-	-18.6%	-8,628.-
Reduction of the number of flights at night 25k	-6.0%	173,374.-	-6.4%	-10,061.-	-30.4%	-42,667.-	-26.5%	-11,435.-

CE = cost-effectiveness

NB: no cost-effectiveness is calculated when an increase in noise is observed with fleet renewal.

A number of observations follow from these results:

- The measure to use quieter aircraft during nighttime period is the most cost-effective in regard to the noise objective in L<sub>den</sub>. The contribution to the general noise objective in L<sub>den</sub> is rather limited to -3,5 per cent and -2,2 per cent for respectively the number of houses and the number of highly annoyed people. The measure however does contribute a large amount to the objective for the L<sub>night</sub> and is in that regard also the most cost-effective.
- The measure to reduce the use of secondary runways is the second most cost-effective in regard to the noise objective in L<sub>den</sub>. Just like the previous measure, the contribution to the general noise objective in L<sub>den</sub> is limited. The measure does not specifically contribute to the objective for the L<sub>night</sub>.
- The measure of fleet renewal is based on and has been calculated for three variations. The purpose of these variations is to make an assessment whether the fleet

renewal fits in with the autonomous development. The results show that in variation 1 (the most favourable replacement for noise), the fleet renewal occurs more quickly than the autonomous development. However, this is no longer the case in variation 2. In regard to the results, variation 3 is situated between variation 1 and 2. The conclusion is that the fleet renewal in the autonomous development (of 0.1 dB and 0.2 dB for all airlines) is well in line with the proposed fleet renewal by November 2024. Thus, the measure hardly provides an additional reduction in regard to the baseline and for this reason is not taken into further consideration

- The measure to reduce the capacity at night is also cost-effective. This applies both to the noise objective that specifically relates to the night in  $L_{\text{night}}$  as well as to the 24-hour objective in  $L_{\text{den}}$ . The measure to reduce the number of night flights to 29,000 night flights is the most cost-effective of the three variants. The contribution to the objective at night is considerable. The greater the reduction at night is, the greater the relative contribution to the noise objective will be. The table shows that the reductions to 27,000 and 25,000 night flights have a larger impact on the set noise objective of minus 15 percent for the night.
- The measure to reduce the overall capacity to 440,000 flights and reduce the number of night flights to 29,000 is the least cost-effective. However, the contribution to the overall noise objective is substantial for all four indicators.

There is not a single measure on the shortlist that on its own would achieve the noise objective for all four indicators. A combination of measures would be required for that. Furthermore, it follows from that stated above that the noise objective cannot be achieved with a commercial operational restriction.

# 8

## Measures to be notified

This chapter describes the combination of measures – to be realised by November 2024 – that are to be notified and the underlying rationale. Measures that do not form part of this combination, however, could have an effect in the subsequent period on the further reduction of the noise nuisance, have been listed in the last paragraph.

### 8.1 Phased realisation of the reduction of nuisance in the 24-hour period

A differentiated picture has been created regarding the implementation of the measures based on the responses and the submitted alternative measures. There are a limited number of measures that contribute to achieving the noise objective in the short term, see chapters 6 and 7. Analyses carried out prior to the Outline Decree of June 2022 (see references in chapter 1) indicate that with a reduction to 440,000 aircraft movements, network quality is still sufficiently safeguarded. However, based on the limited set of measures that now remains, further night and 24-hour capacity reductions would be required to meet the stated noise objective. A capacity reduction that goes beyond the stated 440,000 aircraft movements. This is not sensible given the preservation of network quality and such a choice

also does not suit the demissionary (caretaker) status of the Cabinet.

On the other hand, there are indeed measures that have the potential to have a great effect, but whose noise impact and cost-effectiveness still need to be investigated further and which, moreover, cannot be implemented by November 2024. This concerns, for example, Schiphol Airport's plan for a night closure and the banning of noisy aircraft. Another example is fleet renewal, which has been shortlisted, but after analysis it appears to have an effect mainly after 2024.

All of this leads to the proposal to maintain the noise objective of 20 percent in the 24-hour period and minus 15 percent at night unabated, but to choose to realise an initial step (per November 2024) of approximately 15 percent and in a subsequent step realise the remaining 5 percent in the 24-hour period. In preparation for this next phase the effect of the already implemented measures will be assessed.

This approach, the ministry believes, will do justice to the interests of both local residents and the aviation industry. A major step is being taken in the short term to reduce noise nuisance while at the same time allowing for the realisation of promising proposals that were made during the



consultation but which cannot be included in the present notification. The exact details of the measures to achieve the full 24-hour target will be determined by a new Cabinet, in accordance with the Environmental Noise Directive.

## 8.2 The chosen combination of measures

### Combination of measures

No single individual measure on the shortlist is sufficient to achieve the noise objective (see chapter 7). A combination of measures is required. Furthermore, the Environmental Noise Directive stipulates that the chosen measures may not be more restrictive than necessary to achieve the noise objective. Commercial operational restrictions may only be considered after other measures have been taken into consideration.

Firstly, it will thus be examined which measures are the most cost-effective. Subsequently, the contribution of the individual measures to the noise objective will be examined. The noise impacts and the cost-effectiveness of the combination can simply not be determined by adding up the scores of the individual measures. Measures in combination can lead to instances of duplicate counting, effects that counteract each other or on the contrary lead to synergies (measures that amplify each other when they are implemented in combination).

Following the analysis of the measures featured on the shortlist, the measure of fleet renewal was omitted, as it became evident that the fleet renewal by November 2024 has already been taken into account to a sufficient degree in the reference (baseline). In the responses to the additional efforts proposed in the consultation in regard to the data used in the reference – by committing additional investments and/or moving the fleet renewal forwards – do not result in a greater nuisance reduction by November 2024

than has already been calculated in the reference. However, after November 2024, the proposed fleet renewal may indeed provide an additional contribution. This is one of the reasons to achieve the noise objective in a phased manner for the 24-hour period, see among others chapter 4.

The use of quieter aircraft during nighttime period and the reduction of secondary runway use are (operational) measures that provide a contribution to the noise objective and can be combined. However, the combination of these two measures is not sufficient in achieving the noise objective by November 2024. The measures must be supplemented with other measures. In the event of the lack of other measures that comply with all criteria, it must then be necessarily relied upon capacity limitations for both the total number of flights as well as specifically for the night.

The extent of the capacity limitation is linked with the noise objective that is to be achieved. Strictly holding on the achieving of the noise objective in the 24-hour period by November 2024 would require a disproportionate commercial operational restriction in which the hub function of Schiphol could possibly be endangered. Moreover, it applies, as also stated in chapter 5.3, space is reserved for favourable measures that will only contribute to the reduction of noise nuisance after November 2024. For this reason, the previously mentioned phased realisation regarding the noise objective in the 24-hour period has been chosen after all.

The aforementioned has resulted in a capacity limitation to 452,500 flights in the total amount of flights per year. A capacity limitation to 28,700 flights applies to the night.

The table below presents the effect of the chosen combination of measures in regard to the objectives and cost-effectiveness. For the noise reduction, it applies that this has been calculated in combination. The noise reduction per measure is featured in chapter 7.

#### Remarks regarding the cost-effectiveness

The following remarks apply to the cost-effectiveness of this combination. The measure of deploying quieter aircraft during nighttime period would increase costs for the airline companies. Some of the noisier night flights would be shifted to the day. That would reduce utilisation of fleet capacity and increase operating expenses. Decisio uses the average costs in blocks of hours per segment (see the report in Annex III) to calculate these costs. In addition, the

shift from night flights to day flights would result in some transfer passengers having longer changeover times. This leads to higher travel costs, which are calculated using a value of time (VoT) figure for an average airline passenger.

The measure of reducing the use of secondary runways increases taxing times, as well as journey times for certain flights. This increases operating expenses for airlines and travel time costs for passengers.

**Table 8.1 Effect on noise and cost-effectiveness of the combination to be notified**

Combination of measures	Impact on target				Cost effectiveness (cost per reduced unit in EUR)				
	Objective:	-20%	-20%	-15%	-15%				
	Houses within 58dB L <sub>den</sub>	Highly annoyed people within 48dB L <sub>den</sub>	Houses within 48dB L <sub>night</sub>	People experiencing severe sleep disturbance within 40dB L <sub>night</sub>	Houses within 58dB L <sub>den</sub>	Highly annoyed people within 48dB L <sub>den</sub>	Houses within 48dB L <sub>night</sub>	People experiencing severe sleep disturbance within 40dB L <sub>night</sub>	
1. Use of quieter aircraft during nighttime period	-17.3%	-15.9%	-18.9%	-15.0%	-623,062	-42,160	-710,361	-208,840	
2. Reduction of the usage of the secondary runways									
3. Reduction of the capacity at night to 28,700 flights									
4. Reduction of the capacity to 452,500 flights in total									

A reduction in the capacity at night increases the costs for airline companies. Some of the night flights are shifted to the day, reducing fleet utilisation and hence increasing operating expenses. Here too, transfer passengers may end up experiencing longer changeover times and higher travel costs. Labour costs in the sector could fall because less work has to be done at night. This however also means that employees in the sector will earn less. This is a redistribution effect that has not been modelled separately. Moving flights from the night to the daytime can make departure and arrival times more attractive to passengers. However, this effect has not been modelled separately.

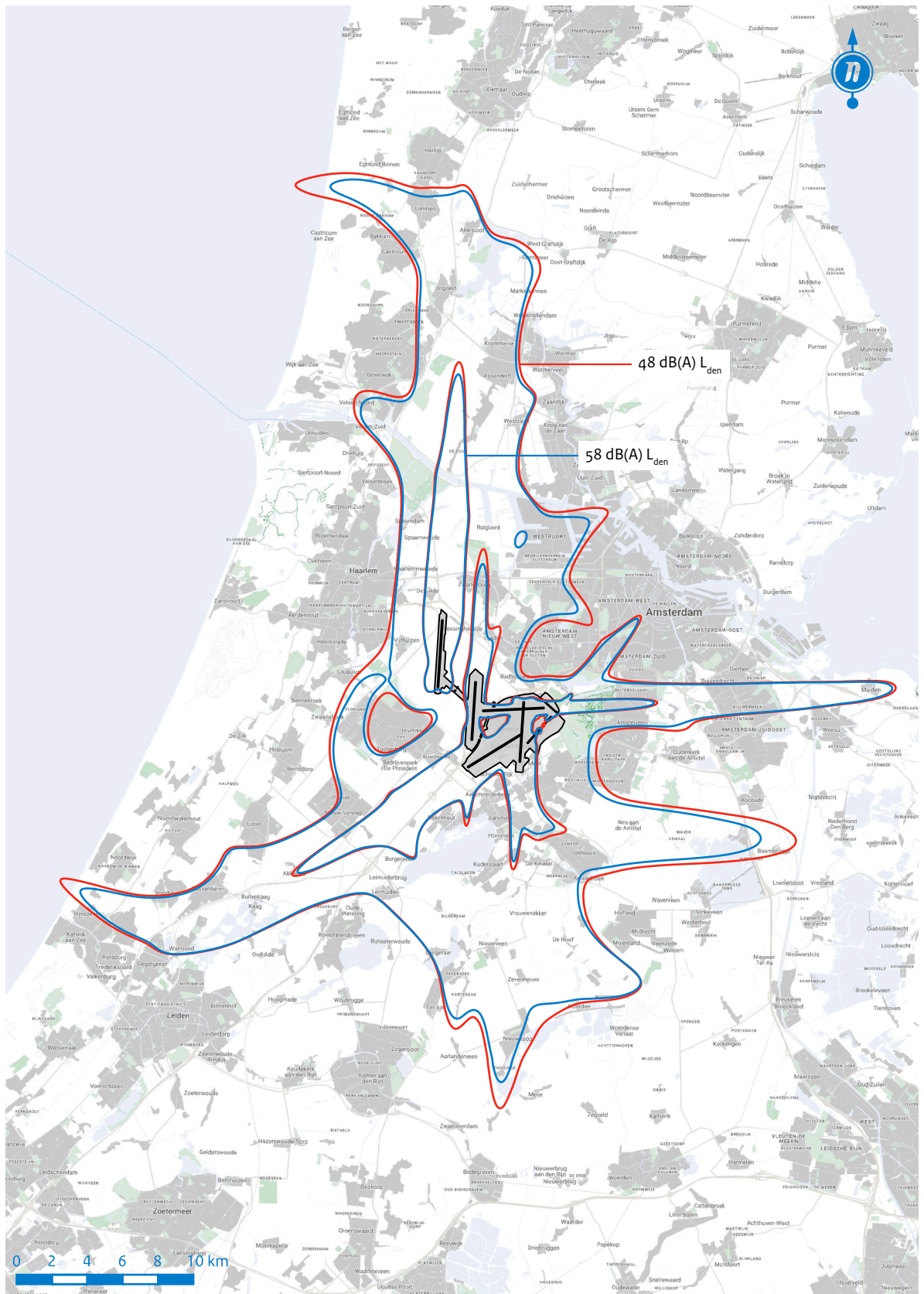
A reduction in the total capacity would make part of the fleet surplus to requirements. That would lead to extra depreciation costs. These extra costs were modelled by estimating the lower fleet utilisation and the associated costs. The infrastructure costs would have to be apportioned over fewer units (passengers and freight), leading to an increase in the airport fees. The higher fees would be paid by passengers and shipment companies. This is a redistribution effect that has not been modelled separately. The decline in capacity would increase scarcity (reduce supply) at Schiphol, giving aviation companies the ability to raise their prices and book surplus profits (in this context also termed ‘scarcity-driven profit’). The higher prices are paid by passengers. This is a redistribution effect that has not been modelled separately. The higher prices and lower capacity mean

some passengers will no longer be able to fly or will use airports in other countries instead. This effect is estimated using the ‘rule of half’, whereby the effect is deemed to be half of the increase in costs for passengers who still fly. There is also an unemployment effect because the level of activity at Schiphol decreases, leading to a reduction in tax revenue and greater expenditure on benefits by the government. Decisio has only included the net effect of frictional unemployment due to the loss of jobs at Schiphol. The restrictions on capacity lead to a decrease in total emissions of greenhouse gases and air-polluting substances. While some flights will simply move to other airports, others will cease altogether, resulting in a reduction in overall emissions. Lower emissions of CO<sub>2</sub>, PM<sub>10</sub> and NO<sub>x</sub> would have a positive effect on the climate and local air quality. For the calculation of these external effects, please refer to Annex A of the report on cost-effectiveness.

**Showing the effects of the measures as noise contours**

The contour map below shows the noise nuisance after implementation of the measures that are to be introduced as of November 2024, in relation to the reference (baseline). The first map is for the 24-hour period (L<sub>den</sub>) and the second map is for the night (L<sub>night</sub>)



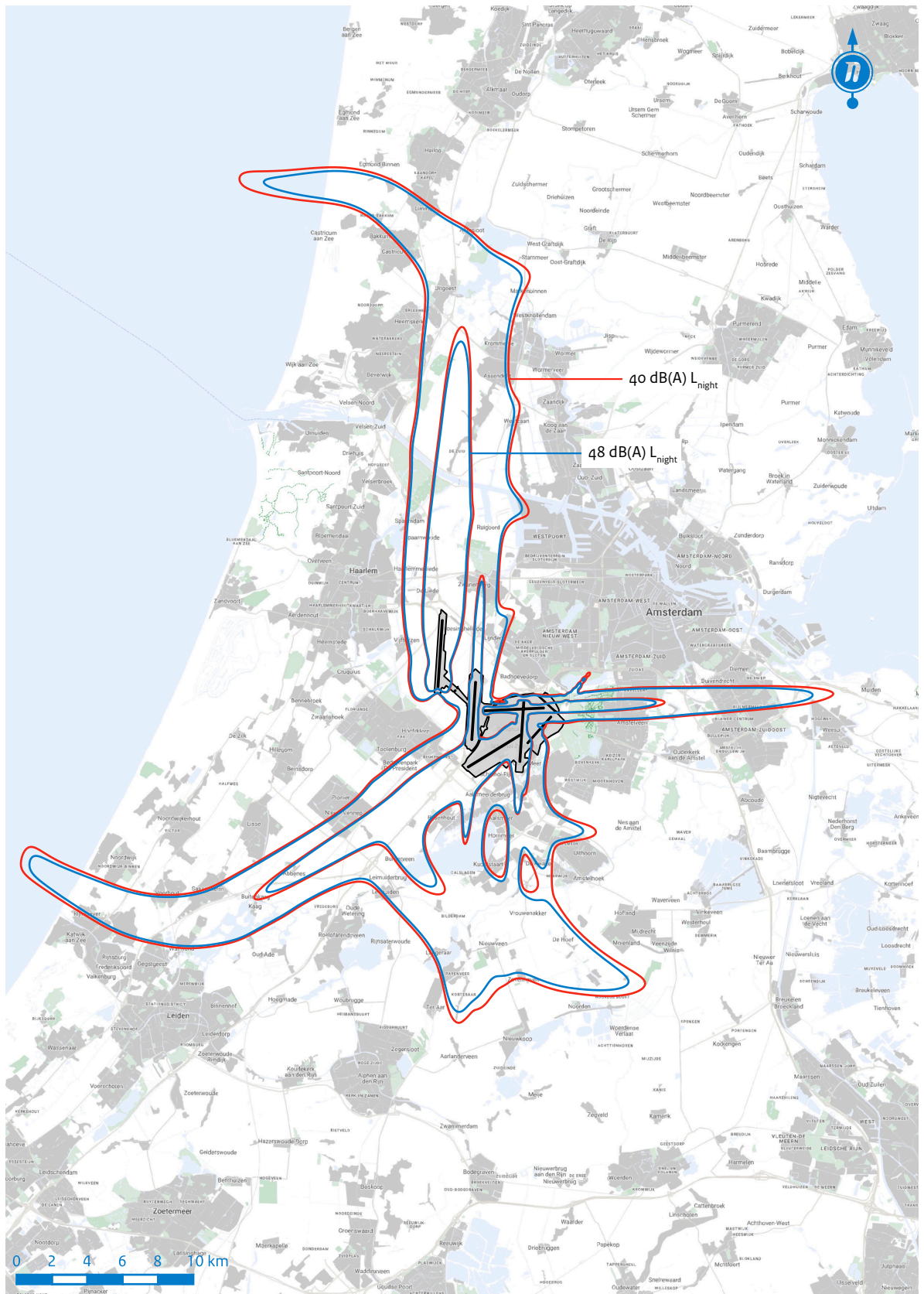


— chosen measures      — baseline scenario

**Figure 8.1** Noise contours for a 24-hour period with implemented measures, versus the reference (baseline)







— chosen measures      — baseline scenario

**Figure 8.2** Noise contours for the nighttime with implemented measures, versus the reference (baseline)



## 8.3 Promising measures for the future

One of the selection criteria when assessing the measures was the possibility of implementing them by November 2024. Stakeholders also proposed measures that do not satisfy this criterion but still could help further reduce noise nuisance in the future. One example is the fleet renewal measure, which would largely take effect in the period 2025–2027.

Another example is closure at night. The effects of this would still need to be worked out in detail and then assessed in terms of cost-effectiveness (inter alia). Furthermore, stakeholders would need a consultative process to give them an opportunity to make their views on nighttime closure known. Partly for these reasons, it is not possible to include nighttime closure as a measure in the current Balanced Approach procedure.

### Potential measures in the future

In addition to autonomous developments for which no measures need to be taken, various potential measures have been identified that satisfy the selection criteria used in the procedure but which require a longer period for their preparation and/or implementation. They are:

- Closing Schiphol Airport at night for arriving and departing traffic.
- Using financial instruments (including differentiation in the rates for airport fees) to encourage accelerated fleet renewal.
- Optimising the various operational take-off and landing procedures (minimising the segments during which planes fly for a long time at the same altitude, optimising climbing speed, intersection take-offs, reduced-thrust take-offs and so on).
- Introducing new operational procedures (at any rate RNP AR for parallel approaches).
- Increasing the number of CDAs (continuous descent approaches).
- Concentrating flight paths to reduce overall exposure to airplane noise.
- Excluding noisy aircraft.

The implementation of these measures depends on various variables and broader programmes, such as the Dutch Airspace Reallocation programme. If these measures are implemented, they are expected to result in an additional decrease in the noise nuisance compared to the situation in November 2024. This is in line with the long-term objective of achieving a continual reduction in the noise nuisance.

# 9

## Summary of the outcome and impact of feasibility assessments

### 9.1 The feasibility assessments

In parallel with the consultation, the measures presented in the consultation document were assessed by Air Traffic Control The Netherlands (Luchtverkeersleiding Nederland, hereinafter 'LVNL') and the Human Environment and Transport Inspectorate (Inspectie Leefomgeving en Transport, hereinafter 'ILT').

LVNL assessed the feasibility of the individual measures in the shortlist in the consultation document plus the three selected combinations. The two assessment criteria that were used were operational safety and the impact on the organisation. The implementation assessment provided a picture of the effects of each operational or procedural change in terms of 1) safety, 2) efficiency and 3) the environment. The combinations of proposed measures were assessed using the same yardsticks. The complete assessment carried out by LVNL can be found in Annex V. Once the definitive shortlist was drawn up, LVNL performed a second implementation assessment; this assessment can be found in Annex VI.

ILT carried out an impact assessment in which it considered points for attention regarding safety and the expected effect on the noise nuisance. That impact assessment is contained in Annex VII. It should be noted that the impact assessment is emphatically not an enforceability & implementation

assessment (known as the 'HUF test'). ILT can only carry out a HUF test once the measures have been included in draft regulations. The HUF test identifies possible points for attention and consequences for monitoring. ILT has responded to the measures in the consultation document in broad lines. After the final selection of the combination of measures, the ministry held a second exploratory discussion with ILT.

In its response to the consultation document, Schiphol Airport commented on the feasibility of the measures. These comments have been paraphrased below.

### 9.2 Conclusions from the feasibility assessments of the measures in the consultation document

#### Air Traffic Control The Netherlands (LVNL)

LVNL concludes that the proposed measures, both individually and in combination, may be assessed as feasible provided that certain preconditions are met and the potential implications are accepted. Specifically regarding the measure to minimise use of the Buitenveldert Runway, LVNL notes that restricting the use of that runway corresponds to current practice in which strict preferential runway use applies. According to LVNL, this measure would



not help reduce noise nuisance further compared to the status quo.

The main themes in the implications of the measures specified in the consultation document (including the numbering used in that document):

- Operational measures such as reducing the use of the secondary runways have an effect on the handling capacity; if no change is made to the capacity declaration<sup>42</sup>, this will lead to a spread in peaks and less room to accommodate disruptions.
- Reducing the flights at night or extending the nighttime regime would put operational pressure on the margins of the day/night periods, assuming that flights are shifted from the night to the daytime. This will make these periods busier, resulting in longer peaks and less room for recovery in the event of disruptions. The room for recovery is also less because of the reduction in the use of the secondary runways. This means that disruptions (whether due to meteorological conditions or other factors) will have more far-reaching impacts and probably last for longer than in the current situation.
- Combinations of operational measures in particular, for example M7b and M10, will affect the handling capacity.
- The reduction in the total number of flights may lead to the larger types of aircraft being used, with an indirect effect on air traffic control's handling capacity. After all, there needs to be more separation<sup>43</sup> for larger aircraft.

As noted, LVNL has stated that all the combinations of measures are feasible. However, according to LVNL this is subject to the following preconditions:

1. A change needs to be made to the distribution of slots during the day in the capacity declaration.
2. The supply of transport needs to be in balance with the amended capacity declaration.
3. The airline companies need to fly according to the schedule.
4. The capacity of the infrastructure on the ground at Schiphol needs to be aligned with the transport mix.
5. There needs to be acceptance of the negative effect on the achievement of the European and Dutch

<sup>42</sup> Pursuant to the EU Slot Regulation, each member state must make sure a capacity declaration is established twice a year for coordinated airports. The capacity declaration forms the basis for the allocation of slots by the slot coordinator.

<sup>43</sup> For air traffic to proceed safely both on the ground and in the air, planes and other vehicles need to be at a sufficient distance (separation) from one another. Air traffic control is responsible for separation both on the ground and in the air. Source: LVNL.

Performance Targets<sup>44</sup> with regard to delays and flight efficiency.

6. Acceptance of reduced room for recovery following a disruption.
7. Acceptance that traffic will be in operation in the air and at the airport for longer periods.

## Human Environment and Transport Inspectorate (ILT)

The ILT acknowledges that the specified measures help achieve the noise target that was formulated. As regards safety, it reports that measures that increase the operational burden will be at the expense of safety unless mitigating measures are taken. Examples are a greater or more long-lasting peak in air traffic. This leads to a greater risk of errors (conflicting traffic), fewer opportunities for recovery and less time and scope to deal with disruptions. The ILT expects that this effect will be least for those measures aimed at reducing capacity (as in the Contraction Decision) or measures that tackle the source (quieter planes).

The final combination of measures was also discussed with ILT.

## Schiphol Airport

In its response, Schiphol Airport initially proposed an alternative set of measures. It has not carried out a formal implementation assessment but has made some comments on the feasibility of the measures presented in the consultation document. The key comments are:

1. Reducing use of the Buitenveldert Runway will not significantly reduce the noise nuisance because there is little difference between this measure and the current use of this runway.
2. Reducing the number of night flights will have a snowball effect during the day – in particular at the margins, i.e. the start and end of the day. It will also make strict preferential runway use harder to stick to, and it will exacerbate the need to use a fourth runway.
3. The estimated positive effect of using fees to encourage airlines to use quieter planes is too optimistic, in terms of both the feasibility of implementation by November 2024 and the expected effect of the pricing mechanism.
4. There is not a simple one-to-one relationship between the number of flights and the perceived noise nuisance, either at night or during the day. For example, a single plane at night can cause disproportionate disturbance in

<sup>44</sup> LVNL European and Dutch Performance Targets



people's sleep. What is more, 440,000 planes in a quieter category could – conceivably – have a bigger impact than 383,000 planes in a heavier category.

### 9.3 Effect of the feasibility assessments on the shortlist and combination of measures

The direct effect of the implementation assessments by LVNL and ILT on the compiled shortlist of measures in the notification document is that the measure reducing the use of the Buitenveldert Runway has been removed from the shortlist. The implementation assessments show that usage of this runway cannot be reduced any further.

In addition, the implementation assessments warn about combining operational measures. Combining operational measures, such as those for 'Extending the nighttime regime' and 'Reducing secondary runway use' in the consultation document, would make the operations more complex – with less room for recovery – and could therefore lead to unsafe situations. The ministry has therefore decided to include just a single operational measure in the chosen combination of measures, namely restricting secondary runway use.

'Extending the nighttime regime' (to the evening and morning) was removed from the shortlist on the grounds of the implementation assessments. The peaks at the so-called shoulders of the night become higher and longer with the measure in this form. This, like the combination of operational measures, leads to an increase in complexity.

### 9.4 Feasibility assessment of the alternative measures proposed in consultation responses

LVNL carried out an implementation assessment for four alternative measures put forward in the responses to the consultation. That assessment only considered the feasibility of the individual measures, not combinations of them. Of the measures assessed, the first 2 were shortlisted. The third measure was initially shortlisted but was removed after further analysis and application of the selection criteria.

1. Fleet renewal.
2. Using quieter planes during nighttime period.
3. Excluding noisy aircraft.

The closure at night as proposed by Schiphol Airport in its 8-point plan did not end up on the shortlist. It is a measure that does not fit with the current Balanced Approach procedure, as explained in Section 8.3 (Promising measures for the future). Despite this, the ministry asked LVNL to assess the measure in view of the broad interest in society at large for this measure. The measure assessed was:

4. Closure at night from 00:00 to 05:00 and from 00:00 to 06:00 with a capacity restriction to 22,000 flights.

According to LVNL, all four measures are feasible in principle. Each measure is subject to certain preconditions that must be met. LVNL notes that the effect of the measures and their feasibility depend partly on the form that each measure takes in practice. Direct and indirect effects of a measure – on the fleet mix, for instance, and the distribution of traffic during the day – can for example have knock-on effects on handling, capacity, punctuality and runway use.

With respect to closure at night in particular, LVNL notes that it can be assumed this will lead to a shift in air traffic to the daytime. LVNL can only assess the effects of this measure once it knows how the airlines would adapt their flight schedules to take account of the measure and how any traffic that does still operate at night can be handled.

# 10

## Subsequent steps and points for attention

### Introduction

Completion of the Balanced Approach procedure will be followed by national decision-making, continuation of the discussions with the slot coordinator and network manager, and (of course) preparation for implementation of the measures.

### 10.1 National decision-making after completing the Balanced Approach procedure

After completing the Balanced Approach procedure, the Cabinet will eventually incorporate the measures in an amended Schiphol Airport Traffic Decree (Luchthavenverkeerbesluit, hereinafter also “LVB”). For that LVB, the environmental effects will be mapped out in an environmental impact assessment (EIA). As input to the draft amendment of the LVB for the NNHS in 2021, a draft EIA has already been drawn up. This EIA will be updated with the latest information. One aspect of this update is investigating the effects of the measures chosen in the Balanced Approach procedure.

The draft amendment to the LVB will then be published, along with the updated EIA, and everyone will have four weeks in which to submit their wishes and objections (also

known as the ‘opinions’). The Cabinet will then draw up a response and the draft decree will be amended if necessary. In parallel with the procedure for gathering opinions, the draft decree will be submitted to Parliament (the process known as the ‘preliminary procedure’). They can discuss the draft decree with the minister if so desired. They are not formally required to approve the draft.

Afterwards, the draft decree will be submitted to the Advisory Department of the Council of State for its recommendations. It generally delivers its recommendations within three months. The Cabinet then produces a report on those recommendations and the draft decree is amended accordingly if necessary. Then the draft decree is submitted together with the report to the King for his signature (known as ‘assent’). The final decree is published in the Bulletin of Acts and Decrees and comes into effect on the date stated in the decree.

### 10.2 Effects of the measures on slots

#### Slot coordination at Schiphol

European regulations provide rules for the process of capacity declaration and slot allocation at coordinated airports. Schiphol defines its capacity declaration twice annually. The capacity declaration reflects the available capacity for that season, taking account of the technical,

operational and environmental constraints. Based on the capacity declaration, the independent slot coordinator allocates slots to airlines for each season. As long as at least 80 per cent of the slot series is actually flown, the EU Slot Regulations entitle an airline to the same slot series in the following comparable season. These are what are referred to as 'historical slots'. If the available capacity is set lower by Schiphol because of a new environmental parameter pursuant to the Cabinet's decision becoming enshrined in regulations, the slot coordinator cannot honour all claims for historical slots. This has consequences for the commercial operation of the airport and thus for airlines' operations. That is why the government is committed to a careful approach, implemented in practice by following the Balanced Approach procedure.

### Airport Coordination Netherlands (ACNL)

The EU Slot Regulations stipulate that the allocation of capacity at coordinated airports in the EU must be carried out by a slot coordinator that is independent both functionally and financially. In the Netherlands, exclusive authorisation for the allocation of slots has been assigned to Airport Coordination Netherlands (ACNL). ACNL allocates slots to airlines in a neutral, non-discriminatory and transparent way, aiming to maximise the use of available airport capacity. ACNL's duties cover the coordinated airports of Amsterdam Airport Schiphol (AMS), Rotterdam The Hague Airport (RTM) and Eindhoven Airport (EIN).

ACNL is a public-law, independent administrative body appointed pursuant to Article 8a.64 of the Dutch Aviation Act. The foundations for slot allocation include the EU Slot Regulation, the Worldwide Airport Slot Guidelines and the Besluit slotallocatie (Slot Allocation Decree)<sup>45</sup>. Because the slot coordinator's duties as prescribed in the EU Slot Regulation are to be carried out independently, articles 21 and 22 of the Non-Departmental Public Bodies Framework Act have been declared inapplicable to ACNL. IenW therefore has no influence on the process of slot allocation.

The proposed reduction in the number of flight movements, pursuant to this Balanced Approach procedure, will lead to the available capacity at Amsterdam Airport Schiphol being less than the number of slots to which there are historical claims. European regulations do not provide a methodology for addressing such a situation and the ministry therefore sent a letter at the end of June 2022 asking ACNL to investigate how to achieve a reduction in the number of aircraft movements, and the related slots, within the rules and procedures of slot allocation.

<sup>45</sup> Slot Allocation Decree

### Recommendations made by ACNL

ACNL issued an advisory report and draft policy rules (containing the reduction methodology) last 14 February. The advisory report discusses the various steps in the process to be taken by the parties involved (the state, the airport, the slot coordinator), based on their individual responsibilities in order to achieve a reduction. The roles and responsibilities are as follows:

1. The ministry (IenW) adopts an environmental standard within the applicable frameworks in legislation and regulations.
2. Based on this environmental standard, the airport operator determines the capacity declaration (in terms of the number of slots available for allocation) each season, taking account of the worldwide slot allocation calendar.
3. ACNL allocates the available slots from the capacity declaration to airlines, in compliance with the Slot Regulations. ACNL has no formal role in determining the number of slots available.
4. The airlines are responsible for utilising these slots according to the rules. The airlines are free to choose the destinations and types of aircraft flown within the allocated slots. The Human Environment and Transport Inspectorate (ILT) and ACNL monitor usage of the slots.

In addition to the roles and responsibilities, the advisory report discusses the legal, process-related and content-related requirements for these steps and the implications they have for the implementation date. It should be noted that the capacity statement resulting from the Balanced Approach determines the allocation of slots by ACNL. In accordance with Regulation 598/2014, the outcome of the Balanced Approach procedure must be announced at least two months before defining the coordination parameters for the 2024/2025 IATA winter season. Furthermore, the environmental standard must be incorporated in legislation, after which Schiphol needs to discuss the capacity statement in detail in the Coordination Committee Netherlands before it is fixed at the start of May 2024. Thereafter, ACNL can use the capacity declaration as the foundation for the final allocation for the IATA 2024/2025 winter season.

In parallel with the advisory report, ACNL published draft policy rules regarding the methodology for allocating slots in the case where there are fewer slots available than historical claims. This procedure will be set out in a policy rule (in the sense of the term under the General Administrative Law Act) and it will be transparent, non-discriminatory and published in good time. The number of slots currently allocated is split among a large number of airlines. ACNL intends applying a proportionate reduction (pro rata). ACNL will publish the policy rule after



informing the sector parties and will set up a working procedure stating how ACNL will apply the criterion of proportionality in practice and what is expected of the airlines. ACNL plans to publish this working procedure as soon as the policy rule has been determined. ACNL will determine the policy rule once there is a need for it, based on the impending capacity declaration<sup>46</sup>.

### 10.3 Alignment with the network manager

The network manager (Network Manager Operational Division, Eurocontrol) forecasts, plans and coordinates the handling of flights in and above Europe to make sure they are as safe and efficient as possible. The Network Manager Operations Centre ensures inter alia that the capacity in the airspace is used effectively. Various matters are documented in the annual Network Operations Plan for the short term (the year ahead) and the medium term (five years).

In an initial response to the consultation document, the network manager stressed the importance of coordinating matters in good time with the airports that will be affected by the measures that are ultimately selected. The network manager has offered to analyse the impact of the measures on other airports and the European network as a whole, in the hope that this will help minimise that impact. The ministry will look to collaborate with the network manager when the measures are worked out in detail.

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<sup>46</sup> Government letter, Adviesrapport en beleidsregel slotreductie van ACNL (ACNL advisory report and policy rules for slot reduction).

# Appendix 1

## Consultation of stakeholders and the consultation process

### Introduction

The Environmental Noise Directive requires steps to be followed that respectively involve pre-consultation with the aviation industry (technical consultation), consultation with all stakeholders (consultation period) and – after processing this consultation – submission of the proposed measures to the EU for notification (notification period).

This chapter sets out how the Schiphol Balanced Approach procedure was carried out. A key guiding principle was regularly informing and involving all stakeholders. The consultation document was circulated widely with the aim of enabling all stakeholders to respond to the measures from their own perspectives and interests, and to propose alternative measures. Information meetings for a broad public and technical meetings were held prior to and during the consultation period. There was also bilateral contact with various parties when the need arose.

### Start of the Balanced Approach procedure for Schiphol

An initial online information session was held for international stakeholders on 8 December 2022. During this information session, attendees were informed about the Balanced Approach procedure in general and how it would take shape in the case of Schiphol Airport.

Starting in December 2022, three technical meetings were organised. These meetings were held on 22 December 2022,

24 January 2023 and 8 March 2023. The technical meetings were held online to give as many parties as possible the opportunity to attend. Participants in the technical meetings included airport operators, airlines and aviation navigation service providers. The reference (baseline) and noise target were discussed in these meetings. The participants were informed about the baseline and why a date in the future had been chosen for this reference point. It was explained that the noise target is being determined with respect to the noise situation in 2024 if no additional measures were to be taken, while taking into account autonomous developments and existing policies that affect the projected noise situation. In addition, participants were told about how the longlist of potential measures was created, the selection criteria used to assess them and the shortlist for the consultation, including the associated calculations of each measure's cost-effectiveness and whether it achieves the objective. In parallel with the technical meetings, studies were carried out to determine the extent to which the potential measures achieved the objective and their cost-effectiveness. These studies served as input for the consultation document. There was an opportunity to submit questions prior to the technical meetings. Those questions were dealt with during the meetings. There was also an opportunity to ask additional questions during the meetings. The written answers to all the questions (Annex IX) were circulated after each technical meeting for the sake of completeness. In the final technical meeting, there was a presentation of the results of the calculations of the cost-effectiveness and extent to which the objective was met for the individual measures on the



shortlist. In addition to the technical sessions (which were open to a broad audience) during this period prior to the formal consultation, meetings were held with various national and international stakeholders in which there was also an opportunity for asking additional questions.

In parallel with the consultation for the Balanced Approach procedure, another consultation was held for the amendment to the Schiphol Noise Action Plan 2018-2023. The action plan describes the noise situation, the noise problem and aspects such as how much noise is produced by air traffic from and to the airport and what measures are being taken to limit noise nuisance. The amendment is aimed at defining the noise targets from the Balanced Approach in the Schiphol Action Plan 2018-2023. Stakeholders were able to submit their opinions on the proposed amendment between 16 May 2023 and 28 June 2023. The opinions that were submitted were read and assessed in conjunction with the responses to the Balanced Approach internet consultation. See Annex X for the document containing the responses.

## The consultation

The formal consultation for the Schiphol Balanced Approach procedure started on 15 March 2023. The consultation document was published in both Dutch and English. A web page was also provided in English for stakeholders who do not understand Dutch.

The target groups for the consultation have consisted of local residents, bodies representing businesses, trade unions and bodies representing employees, nature and environmental organisations, airport operators, aviation companies, air traffic control organisations and the network manager.

The option of submitting opinions was publicised via a widely distributed news report, a press release, in bilateral discussions, by the Coordination Committee Netherlands and in various international aviation meeting forums. The Lower House of the Dutch Parliament was informed at the start of the consultation. The consultation period lasted three months and ended on 15 June 2023.

To allow careful consideration in the choice of final measures, not only have all the potential measures identified been presented in the consultation document but also the possible combinations thereof. Three such combinations were identified at the start of the consultations as being viable in relation to achieving the noise target by November 2024.

Stakeholders participating in the consultation are at any rate being invited to give their views on the selection, composition, effect and desirability of the three combinations of measures presented in this document. Participants have been expressly invited to propose alternative measures or alternative combinations of measures that could help achieve the noise target and that can be achieved by November 2024.

Two additional information sessions were organised during the consultation period: one in Dutch and one in English. These information sessions were held online to make it as easy to attend as possible. During the sessions, the civil servants involved and the subject-matter experts gave explanations of the consultation document and there was an opportunity to ask questions about it. Both questions submitted in advance and questions raised during the live chat were discussed.

## Overview of steps in the consultation of stakeholders

The table below summarises the consultation of stakeholders.

**Table B.1 Steps in the Balanced Approach procedure for Schiphol**

Steps in the Balanced Approach procedure for Schiphol			
Objective	Form	Target group	When
<b>1. Technical discussions</b>			
Explaining and tightening up the design of the Balanced Approach, the methodology to be used in studies and providing information in advance about targets and possible measures	Three interactive consultations from a studio led by the officials involved with input from subject matter experts/researchers: presentations and Q&A sessions in various formats	Stakeholders and interested airlines, air traffic control organisations and airports or their representatives	<ul style="list-style-type: none"> <li>• 22-Dec-2022</li> <li>• 24-Jan-2023</li> <li>• 8-Mar-2023</li> </ul>
<b>2. Consultation</b>			
<ul style="list-style-type: none"> <li>• Enabling all stakeholders to respond to the measures from their own perspectives and interests</li> <li>• Gathering input for potential tightening up and/or improvement of targets and measures</li> </ul>	<ul style="list-style-type: none"> <li>• Open internet consultation using the consultative document as input</li> <li>• Additional information sessions and dialogue with stakeholders</li> </ul>	All stakeholders who may be affected by the measures	15-Mar-2023 to 15 June 2023
<b>3. Information sessions</b>			
<ul style="list-style-type: none"> <li>• Explaining the consultation document and answering questions</li> </ul>	Two interactive online information sessions (in Dutch and English) from a studio; the civil servants involved and subject-matter experts/researchers explained the consultation document and the measures in presentations and a Q&A session.	All stakeholders who may be affected by the measures	20 April 2023 and 8 May 2023

### Ongoing stakeholder consultations

In addition to the above steps, agreements and information exchanges, there have been consultations with a wide range of stakeholders that were held in parallel. The discussions took place from June 2022 following the Cabinet decision, and were intensified from December 2022. These discussions were initiated by the ministry to provide information about the implementation of the Cabinet's decision, as well as to gather information to so that the Balanced Approach procedure could be carried out carefully and the right information developed for use as input in the various steps. The consultations have taken place both on the initiative of the ministry and, just as often, at the request of interested parties.

Non-exhaustive discussions have been held with international interest groups, various airlines, nature and environmental organisations, air traffic control organisations, government representatives from EU member states and elsewhere, local authorities (jointly as the Schiphol Administrative Region) and the Schiphol Environmental Council (social consultation about the airport), and others.

There has also been alignment with other stakeholders mentioned in the scheme, such as the slot coordinator and the network operator. A summary of this alignment can be found in Chapter 9.



# Appendix 2

## The ministry's reply to the responses during the consultation

### Introduction

The responses that were received led to a greater focus on the details of the noise issue – including its formulation and the supporting arguments – from the perspectives of various interests, with more thorough clarification of the methods used, reconsideration of the measures, addition of new measures and ultimately the selection of a different combination of measures to the one proposed in the consultation document.

The internet consultation for the Schiphol Balanced Approach procedure was open for the submission of responses in the period from 15 March to 15 June 2023. The responses were submitted as being for publication, for publication but anonymous, or not for publication. A total of 224 responses were submitted, of which 173 are publicly available with the permission of the respondents.

The ministry has studied all the responses. It also asked an independent research firm to analyse the responses. That analysis can be found in Annex IV.

The present appendix contains a counter-response in broad terms to the responses to the consultation. Responses submitted as being 'not for publication' have been rendered anonymous and generalised where possible.

In the sections below, a summary of the main messages in the responses relating to various topics is given in the form of 'observations'. These observations are followed by an explanation of how the ministry dealt with the responses.

### B2.1 Responses to various topics

#### 2.1.1 Responses regarding the necessity for measures and preferences

##### Observations based on the responses

Local authorities (municipalities and provincial authorities), residents' organisations and nature and environmental organisations explicitly support the course taken of achieving a significant improvement with respect to noise nuisance by November 2024. Although there are differences between companies, airlines are more critical of the proposed measures, including the supporting evidence and sometimes even the necessity of the measures. Schiphol Airport acknowledges the urgency of the problems regarding noise nuisance.

In general, it can be concluded, regardless of the respondent's origins or interests, that there is no explicit preference for any one of the combinations of measures proposed in the consultation document.

However, there is a clear difference in preferences for the types of measures for achieving the noise target. Local authorities favour operating restrictions. Foreign public authorities (those that submitted a response) reject any restriction on operations. Nature and environmental organisations and local residents have an explicit preference for a restriction on operations that goes further than what is proposed in the consultation document. Some local residents and municipalities – in what is termed the ‘south-east corner’ of Schiphol’s environs – emphasise that even in the event of a contraction, it will still be necessary to ensure an improvement for residents in the vicinity of all the take-off and landing runways. Without ruling out restrictions on operations entirely, airlines prefer to focus on alternative measures in the categories of policy for tackling the source, land-use planning and management, and operational procedures. Schiphol Airport submitted its own 8-point plan. Everyone seems to believe contraction should not be a goal in its own right; what matters is reducing noise nuisance.

### **The ministry’s reply**

The responses concerning the necessity of the measures confirm the impression of divergent interests, which were weighed up in a broad process prior to the Outline Decree, the start of the Balanced Approach procedure and the determination of the noise target. The responses support the need to arrive at measures that can deliver a significant improvement in noise abatement by November 2024.

The Environmental Noise Directive states that restrictions on operations should only be considered as a last resort. First, there should be an investigation of whether the noise target can be achieved using measures tackling the source, measures in land-use planning and management, and operational procedures. This principle is stressed in various responses, including those submitted by airlines and foreign authorities. This principle was upheld in full when compiling the combination of measures as presented and as used in the cost-effectiveness calculations. However, the analysis of the available measures showed that a combination of measures without restrictions on operations would not have enough effect on the noise to achieve the noise target.

### **2.1.2 Responses regarding the level of ambition and the noise target**

#### **Observations based on the responses**

In addition to support for the noise target as formulated, there were criticisms. These ranged from dissatisfaction with an overly ambitious noise target to criticism that the noise target and associated measures are not sufficiently ambitious to reduce the noise nuisance significantly. The

same applies to the implementation date of November 2024. On the one hand, airlines and foreign authorities feel too much needs to be achieved too quickly. They argue that the level of the noise target and the short period in which measures have to be implemented have led to a disproportionate focus on restrictions on operations, while other promising measures that require more preparation time are not being given a proper chance. On the other hand, local authorities, local residents and nature and environmental organisations believe more can and should be achieved by November 2024. The focus here is often on noise nuisance at night, for example in the introduction of Schiphol Airport’s 8-point plan, which includes nighttime closure.

Some responses focus on the composition of the target, stating that the objective should encompass not just noise but also emissions and the climate more generally in order to obtain an integrated combination of measures aimed at all aspects of the airport’s environmental impact. These respondents – local authorities, local residents and nature and environmental organisations – think that the debate about the quality of the living environment is being drowned out by too narrow a focus on the numbers of flight movements.

### **The ministry’s reply**

The aim expressed by the noise target is to take a significant step in reducing noise nuisance and that remains unchanged. At the same time, new insights into the effectiveness of measures that were considered in the past and the responses that were submitted have changed the minister’s assessment of the proportionality of the timetable for the noise target and the measures to be taken. Maintaining the original 24-hour noise target by November 2024 in full would require a disproportionate restriction on operations, endangering Schiphol’s function as a hub. In view of the alternative measures that could lead to a further reduction after November 2024, a phased timetable for achieving the noise target seems more proportionate. However, even with a phased timetable, some restrictions on operations will still be necessary to achieve the noise target.

Chapter 1 and the Schiphol Outline Paper explain how multiple challenges are closely related and jointly determine the quality of the living environment in the vicinity of Schiphol Airport. Noise nuisance is one of these environmental impacts, which is being tackled as a matter of priority. If restrictions on operations are being considered for noise reasons for an airport with more than 50,000 flights, the Balanced Approach procedure must be followed. That is why the objective was formulated specifically as a noise target, without including other



environmental effects. At the same time, the ministry is working on the design of a new system based on norms for noise, CO<sub>2</sub> emissions and other harmful substances

### 2.1.3 Responses regarding the methodologies used to determine noise nuisance, the reference year and the effect

#### Observations based on the responses

Local authorities, local residents and nature and environmental organisations warn that noise nuisance cannot be viewed purely as a matter of models and noise calculations (dBs and contours), saying this disregards how noise is experienced or perceived. They advocate giving consideration to peak loads and periods of quiet. In the consultation, locals in particular asked for attention to be paid to the lack of a concrete picture of what effect the measures will have and their impact on the actual experience of noise nuisance.

On the other hand, the airlines criticise the description of noise exposure using approaches other than the Doc29 methodology (see Chapter 3). The airlines also explicitly state that too much value is attached to ‘subjective’ studies of noise nuisance by the Municipal Health Service (GGD) and the National Institute for Public Health and the Environment (RIVM). The airlines also object to the choice of a reference (baseline) that is in the future, rather than (for example) the most recent completed operating year. Moreover, there are suspicions that the chosen percentages for the noise reduction in the noise target as presented in the consultation document (20% during a 24-hour period and 15% at night) might purely have been established to justify restricting operations to 440,000 flights.

#### The ministry’s reply

Chapters 3 and 5 give more explanation of the use of Doc29, as prescribed in the Environmental Noise Directive. For example, these chapters explain that the reference is based on Doc29 calculations.

Furthermore, text has been added to Chapter 3 explaining that the use of mathematical models alone – such as Doc29 – could lead to an underestimate of the impact of the noise on the local residents affected. Studies aimed at investigating how noise nuisance is experienced in practice therefore constitute an important addition, provided that they are conducted in accordance with scientific standards. The results of such studies are one reason for the Cabinet’s decision.

The mathematical models and methods (such as Doc29) have been agreed internationally. Their chief value is that they enable predictions of the noise that can be expected

after measures etc. have been taken – and indirectly to it assumptions about the level of nuisance to be experienced – is made possible. They are therefore indispensable for analyses and for estimating the effects of measures. In addition to being used to determine the baseline, all the potential measures on the shortlist in this notification document were assessed using this yardstick of Doc29, as required by the Environmental Noise Directive.

Furthermore, Chapter 8 contains noise maps based on Doc29 that show the impact of the measures compared with a situation without additional measures. This is also intended as a response to the request from local residents to be more specific about the actual effect of measures.

The use of a reference year in the future was reconsidered in view of the consultation, but this did not lead to a change. Having the reference in the future makes it possible to allow for noise abatement measures that are already planned and autonomous developments such as fleet renewal. The reduction in noise exposure as determined in the noise target is on top of the reduction based on the identified autonomous developments and the measures that have already been announced. This makes the ‘net’ effect of the new measures explicit, which is precisely what is intended. The calculation based on the autonomous developments through to November 2024 with an impact on noise nuisance has been maintained. It is based on available, published information that is also used in the Dutch Airspace Reallocation programme.

It is incorrect to assume that the noise target was chosen in order to arrive at a certain desired number of flight movements. The noise target is based on the noise problem while keeping in mind the importance of maintaining the airport’s hub function: what reduction in noise exposure is needed to tackle the problem of noise while at the same time ensuring a timetable for attaining the noise target that does not endanger the hub function. Capacity reduction is a means to achieve the noise target and is only deployed as a last resort. The restriction on operations as notified is not as far-reaching as the outcome of 440,000 flight movements assumed by the airlines on the basis of the Schiphol Outline Paper.

### 2.1.4 Responses to the implementation of the Balanced Approach procedure

#### Observations based on the responses

A large number of the responses object to the procedure as it has been followed so far. As a result of the short throughput time, the petitioners argue that potentially effective measures are being dropped so that the measures taken are non-proportional or not cost-effective.

Additionally, it is regularly noted that the Balanced Approach procedure states that operational restrictions should be a last resort. A number of 440,000 aircraft movements defined in advance is deemed give the impression of reasoning that works back from a target instead of sequential analysis, problem-solving and finding solutions. Critique of the procedure is partly specifically aimed at the consultation phase during which, according to these stakeholders, not enough time and information were provided for giving a substantive response to the problem and proposed measures.

During the consultation phase of the Balanced Approach, input was given on how that approach is being implemented by the Dutch government. There are regular references to European regulation 598/2014, as well as to the Chicago Convention and air transport agreements between EU and non-EU states in which the Balanced Approach principle is included.

### **The ministry's reply**

As already explained in the notification document, the noise situation and the noise problem are specified in the Noise Action Plan and are also being discussed with stakeholders, most recently during the consultation on the update of the noise plan in May and June 2023. It was also explained that the ministry has carefully considered the criticisms of the noise objective in relation to the specified realisation deadline of November 2024 and that this has also led to new considerations of the timeframe for achieving the noise target. The statement that there is also backward reasoning from the target is also incorrect. As noted above in 2.1.3, the operating restrictions are a means to achieve the noise target and do not go beyond what is required.

In this consultation, the participants are invited to respond to the selection, composition, effect and desirability of the three combinations of measures that are presented. Participants have also been expressly invited to propose alternative measures or alternative combinations of measures that could achieve the noise target and can be achieved by November 2024. The Environmental Noise Directive determined that operational restrictions can be considered if measures in the other categories are insufficient in achieving the noise target. This principle was upheld in full when compiling the combination of measures as presented and as used in the cost-effectiveness calculations. This has resulted in the previously presented definitive combination of measures.

The Netherlands is dedicated to following a careful and inclusive Balanced Approach procedure. In June 2022, the cabinet announced it would be working towards a new

balance between the importance of an international airport for the Netherlands and the quality of life in the area around the said airport on the one hand, specifically to reduce the negative effects of Schiphol airport on people, the environment and nature in the surrounding area, while on the other preserving the economic function of the airport. This cabinet policy, as expressed in the Schiphol Outline Paper, also contained the announcement of the Balanced Approach which informs all involved parties as early as possible, with the intention of giving them an opportunity to get ready for the start of this procedure in good time. This announcement has been repeated in communications and at various places, both national and international, over the following months.

As explained in Appendix 1, which outlines the full consultation process, the Balanced Approach was formally launched in December 2022 by means of three technical consultative meetings organised on 8 December 2022, 24 January 2023 and 8 March 2023. The formal consultation for the Schiphol Balanced Approach procedure started on 15 March 2023. This consultation ran until 15 June 2023. This created a window of at least 6 months as from the first technical consultation in December 2022, during which it was possible to share thoughts, ideas, alternative measures and concerns with the Dutch government. The ministry expressly called upon people and groups to do so during both the technical consultations and the information sessions, as well as in the invitation to respond to the consultation document during the formal consultation period. The ministry therefore believes that it provided sufficient time, opportunity and information, in accordance with the Environmental Noise Directive.

The Netherlands is committed to the principles of the Balanced Approach; the implementation of that approach for the Netherlands and the other EU treaty parties is detailed in the Environmental Noise Directive. The Balanced Approach procedure that is currently being following for Schiphol has been designed in accordance with the steps described in the said ordinance. The principles for the Balanced Approach as developed by ICAO include guidelines for noise management around airports, without imposing any specific procedure or binding regulations. It is also worth noting in this context that the guidelines recognise that the Balanced Approach should be seen in light of the specific legal and factual context of noise management around a specific airport. The EU Regulation builds on the principles of the Balanced Approach developed by ICAO and imposes specific (procedural) rules on member states if they want to proceed with introducing new noise-related operational restrictions. The Netherlands is aiming to follow these specific procedural rules carefully.



### 2.1.5 Responses to the cost-effectiveness calculations

#### Observations based on the responses

Several responses about the cost-effectiveness calculation suggest that the calculation is different from how social returns should be calculated, namely through a social cost-benefit analysis (SCBA). Differences include the facts that the cost-effectiveness study includes the effect of foreign passengers, that the period of time is limited to 2024 and that a low CO<sub>2</sub> valuation is used. That low CO<sub>2</sub> valuation is compliant with the regulations, but not up to date.

#### The ministry's reply

In response to these observations and at the request of the ministry, Decisio has drawn up sensitivity analyses. This (see Annex III) includes alternative calculations that take account of the comments on the CO<sub>2</sub> valuation, the valuation of transport times to and from the airport, and a definition of the effects for European passengers. The conclusion from these calculations is, although there certainly are differences in outcomes, that the general picture of the cost-effectiveness of measures remains the same.

### 2.1.6 Responses to the impact of operating restrictions on international connectivity

#### Observations based on the responses

Reactions from outside the Netherlands draw attention to the international and wider impact of any operating restrictions and the lack of sufficient attention to connectivity for countries connected to the rest of the world through Schiphol in the current network.

#### The ministry's reply

A study into international connectivity conducted by the cabinet, referred to in the Schiphol Outline Paper, shows that a ballpark figure of 400,000-440,000 aircraft movements can ensure appropriate accessibility of the Netherlands and that a core network of strategic destinations<sup>47</sup> can remain intact. At the same time, the main destinations for the Netherlands can even then be expected to remain in the network. Due to the inherent uncertainties that come with determining a bandwidth, the cabinet has chosen to take 440,000 aircraft movements as the lower limit in the Outline Decree. The cabinet expects that this will allow the hub function to remain unchanged.

<sup>47</sup> Strategic destinations are cities that have considerable economic importance for the Netherlands or have a special political/historical relationship with the Netherlands.

When this bandwidth was determined, allowance was also made for the wider network function of Schiphol by leaving room for flights to non-strategic destinations on top of the strategic network for the Netherlands. This includes flights to tourist destinations and European feeder flights allowing airlines to cater directly for intercontinental destinations that are important for the Netherlands. This analysis assumes that leaving room for non-strategic destinations requires an additional capacity of 15 per cent above the strategic network.

In the case of operating restrictions for Schiphol, airlines will adjust the network and possibly their business models to respond to market opportunities in the new situation.

### 2.1.7 Responses about the impact of operating restrictions on the allocation of slots and on individual airlines

#### Observations based on the responses

Several airlines and/or the organisations representing them have pointed out the as yet unpredictable and possibly disproportionate impact on some airlines. A proportional reduction of slots would not necessarily have a proportional impact. One example is the effect of reductions in night flights on airlines that operate flights from the United States. They also point out that there is already a scarcity of slots at Schiphol. Wouldn't operating restrictions make new access to the Dutch market impossible?

#### The ministry's reply

At the moment, we do not yet know what impact the proposed proportional reduction method to be applied by the Dutch slot coordinator (ACNL) will have on individual airlines. Moreover, it is not yet clear where the reduction will have its effect (and what coordination parameters this will change in the capacity declaration). It will also depend on the choices that airlines themselves make.

Operating restrictions do not make gaining access to the Dutch market impossible, but indeed more difficult because there will be less (or indeed 'even less') airport capacity than in the current situation. The current situation is already one of scarcity because historical claims are made against almost all the available slots at Schiphol. Any historical slots that are not sufficiently utilised by airlines will be reallocated by the slot coordinator based on the priority rules from the Slot Regulation. These regulations make sure that newcomers are able to gain access to the Dutch market.

Additionally, the Dutch government is following the developments around secondary slot trading with great interest as this could also be a way to enable entry into the



Dutch market in situations of extreme scarcity, even if no slots return to the slot coordinator for reallocation.

### 2.1.8 Responses to the level of attention for sub-interests within the aviation sector

#### Observations based on the responses

A particular case of the slot problem, as set out in the section above, is the attention being requested in a number of the visions for various sub-interests. Take for example the specific effects on the links to the Caribbean part of the Kingdom of the Netherlands. With regard to nighttime reductions, the potential negative effects these could have on holiday flights (in terms of feasibility and costs for airlines and travellers) are regularly pointed out.

Airlines that explicitly focus on cargo transport fear a disproportionate impact of the various measures on their interests. Might capacity reduction at night not lead directly to a decrease in the slots used for cargo flights in particular (and similarly, indirectly, capacity reduction in the day)?

#### The ministry's reply

Shrinkage may lead to airlines ceasing to operate certain connections. It cannot be said in advance which destinations and types of operations may be dropped; this depends on the commercial considerations of the aviation companies themselves. It is possible that certain sub-interests may be hit harder. Cargo flights, for example, are vulnerable because their business models – which often feature a degree of unpredictability in operations – mean they will have a harder time holding onto their slots under the prevailing rules of the Slot Regulations. As part of the planned revision of the EU Slot Regulations, the Dutch government is committed to retaining cargo operations in the slot allocation process.

Not accommodating the demand for air transport will probably result in demand 'leaking away' to other airports abroad and increased ticket prices. Depending on the cost level, this could cause deterioration of the competitive relationship between Schiphol and other European hub airports. However, this is not an automatic consequence: an airport can remain attractive for both passengers and cargo by providing good services, high-quality facilities, easy accessibility by public transport, etc.

Regional airports might be able to offer alternatives for holiday flights to nearby destinations.

## B2.2 Alternative measures from the responses to the shortlist

Alternatives or additional measures were proposed in the responses (see Appendix 3). Sometimes they were worked out in detail and substantiated, and on other occasions merely touched upon as a solution or addition to another measure. Concrete measures or suggestions for additional solutions were classified in the four categories of measures that the Environmental Noise Directive distinguishes between. The criteria for inclusion on this list are:

- The suggestion or concrete measure is explicitly identified as such in one or more responses submitted after the publication of the consultation document;
- The suggestion or concrete measure does not already exist (in the proposed form) on the longlist of measures in the consultation document.

Not placing a potential measure or suggestion on the shortlist does not mean that the measure involved is insufficient in terms of quality or that it holds no promise for the future, after realisation of the target by November 2024. A proposed measure might, for example, not be shortlisted because it needs longer to work out the details.

The measures emerging from the reactions that were shortlisted are:

1. Fleet renewal
2. Using quieter planes during nighttime period

All measures on the shortlist, i.e. including the ones emerging from the responses, were quantified in terms of cost-effectiveness and whether they achieve the objective (see Chapter 7).

## B2.3 Alternative measures from the responses not on the shortlist

Measures that were not shortlisted but do have the potential to be realised in the future or where explicit explanation is in order have been explained further below.

### 2.3.1 Moving flights from Schiphol to Lelystad Airport

#### Proposed measure/suggestion from the responses

Moving flights from Schiphol to Lelystad Airport was mentioned by a number of parties as a way of reducing noise nuisance at Schiphol, on the assumption is that the nuisance will be less severe around Lelystad than around Schiphol.

### **The ministry's reply**

Decisions about Lelystad Airport cannot be taken before mid-2024 as announced in the Outline Paper; that is separate from this consultation (see Chapter 1). For that reason, this measure was not included on the shortlist.

### **2.3.2 Reducing nuisance at night**

#### **Observations based on the responses**

There is an explicit focus on measures related to the nighttime. Many of the reactions submitted are about concrete measures aimed at reducing noise nuisance at night. This includes proposals for closure at night, with a guaranteed continuous period of no noise caused by air traffic, banning or reducing night flights, shifting night flights to daytime, and banning or prohibiting specific noisy aircraft types at night. On the other hand, nighttime measures, including the measures proposed in the consultation document, are seen as detrimental to airlines.

#### **The ministry's reply**

The proposal from Schiphol Airport to close at night is part of its 8-point plan and can count on the support of local government authorities, local residents and environment/nature organisations. It should be pointed out that other European airports have already surpassed Schiphol in this regard.

The assessment after consideration is that this measure offers an alternative with a lot of potential for the future, which fits well with the ministry's commitment to reduce noise nuisance permanently for local residents, especially during the night. However, the effect of a closure at night could be far-reaching; the full impact of this cannot be predicted. These possible effects of a closure at night were discussed in more detail with Schiphol itself and others. Identifying the consequences of this measure, together with the surroundings and the branch, requires a separate procedure including broad consultation. For safety's sake, this measure was therefore not included in the definitive package of measures to be realised by November 2024.

An additional problem of realising the proposed closure at night within the ongoing Balanced Approach procedure is that it leads to an 'overshoot' of the noise target, which has been set as a reduction of 15 per cent specifically for the night. The Environmental Noise Directive states that measures should not be more restrictive than necessary.

### **2.3.3 Excluding private jets**

#### **Observations based on the responses**

Excluding private jets is often put forward as an alternative or additional measure. In practice, one runway largely is used for this type of aircraft, namely the East Runway. There is support for this from local government bodies, nature/environmental organisations, as well as some of the airlines. Schiphol Airport has included this measure in its 8-point plan.

There is no set definition of the term 'private jet', incidentally. In the following response to the reactions submitted pushing for this ban, the ministry has responded to the measure that aims to bar business flights that transport company staff plus the use of private jets for personal travel.

#### **The ministry's reply**

Barring private jets was considered as an alternative measure. This measure was not included in the definitive shortlist of measures. There is no legal basis for barring private jets.

Because of the relatively high environmental footprint per person, options for banning such flights have been explored before. In April 2023, the Dutch parliament was informed about the ministry's approach regarding private jets in the context of the Dutch climate policy. It was concluded that there is no legal basis for barring or limiting access to an airport for private jets or business aviation for sustainability reasons. In October 2022 and again in June 2023, the Netherlands joined a number of EU member states at the Transport Council that drew attention to the environmental and climate impact of private jets, with the aim to start a discussion to come up with measures that also include the impact on this sector<sup>48</sup>. In the response to the public consultation for the revision of the EU Slot Regulations, the ministry of Infrastructure and Water Management made the decision to focus more on national space sustainability, network quality and freight in the slot allocation for the Netherlands.

### **2.3.4 Optimising operational take-off and landing procedures**

#### **Observations based on the responses**

A number of aviation companies stated in the responses that there are gains to be made in further optimisation of take-off and landing procedures.

<sup>48</sup> Parliamentary letter with report, Transport Council meeting of 1 June 2023



A concrete example, that the company submitting it also expects to have the most impact, is using the NADP2-800 take-off procedure. A Noise Abatement Departure Procedure (NADP) is a take-off procedure for reducing noise nuisance. The objective of the NADP2 procedure is to reduce noise further away from the airport, unlike what is known as an NDAP1 procedure, which aims to reduce the noise close to the airport. NADP2-800 would mean that the acceleration height of 800 ft is made mandatory. In the current situation on Schiphol, NADP1 is partly used and, in the case of NADP2, airlines have various preferences for the acceleration height. According to the airline that submitted the proposal, NADP2-800 is the most effective for reducing noise nuisance. This is because it involves climbing relatively fast.

### The ministry's reply

The proposals submitted are valuable for reducing nuisance further. Optimisation of take-off and landing procedures is a continuing process that includes the 'Minder Hinder' (Less Nuisance) Schiphol programme; see Chapter 2 for more information. New initiatives fit in the regular partnerships for nuisance limitation and help with 'Bending the curve in noise abatement', as explained in Chapter 1. Given the throughput times of current programmes, the proposals or suggestions submitted do not appear to be feasible by November 2024 and/or lead to nuisance merely being displaced. Moreover, adoption of these kinds of alternatives usually cannot be enforced. That is why they have not been included on the shortlist in the notification. In addition, some of the proposals mentioned were included as building blocks in the preferred alternative of the Airspace Reallocation programme, where they were deemed infeasible in the period up to 2024 (often much later if indeed at all within the time horizon of the programme, i.e. 2035).

The NADP2 procedure in itself (without a specified acceleration height) is already available and it used by a few airlines. However, the procedure is not enforceable in the current situation; a pilot can make a different choice, even if this procedure were to be included as preferred take-off procedure in the AIP<sup>49</sup>. This means that the proposal from the submitter to make NADP2-800 mandatory is not enforceable, and could possibly result in the nuisance simply being displaced. That is why the procedure has not been included on the shortlist for this notification.

<sup>49</sup> Aeronautical Information Publication that includes aviation regulations and procedures

### 2.3.5 Adding the entire Schiphol 8-point plan

#### Proposed measure/suggestion in the response

Responses from local residents are usually positive about operating restrictions. This often involves a preference for implementing the 8-point plan<sup>50</sup> as submitted by Schiphol airport as quickly as possible. The proposals principally referred to are for closure of the airport at night and the ban on private jets. The ban on private jets is also regularly brought up as an alternative measure, without referring to the 8-point plan. The eight points in the plan:

1. New rules with clear limits for noise and CO<sub>2</sub> emissions.
2. The noisiest aircraft types are no longer welcome.
3. No more take-offs between 00:00 and 06:00; no more landings between 00:00 and 05:00.
4. No more private planes and small business traffic at Schiphol.
5. No extra runways.
6. Annual investment of €10 million in the surroundings and local residents.
7. Freight traffic protection.
8. Focus on people.

#### The ministry's reply

Points 2 (The noisiest planes are no longer welcome), 3 (No more take-offs between 00:00 and 06:00, no more landings between 00:00 and 05:00) and 4 (No more private planes and small business traffic at Schiphol) have been covered elsewhere in this appendix.

Point 1 (New rules with clear limitations on noise and the emissions of CO<sub>2</sub>) is, with regard to the noise component, part of the development of a new system as referred to in Chapter 1. It is the third track in 'Bending the curve in noise abatement', which follows after the realisation of the noise target by November 2024.

Point 5 (No extra runways) has now been realised with the minister's announcement in June 2023 about the suspension of the reservations of the second Kaagbaan Runway.

Points 6 (Annual investment of €10 million in the surroundings and local residents), 7 (Freight traffic protection) and 8 (Focus on people) are not specifically related to the reduction of noise nuisance, which is the subject of this Balanced Approach procedure.

<sup>50</sup> Opting for a quieter, cleaner and better Schiphol



# Appendix 3

## Total overview of alternative measures and suggestions proposed in the consultation

In the table below, concrete measures or suggestions for additional solutions have been classified into the four categories of measures that the Environmental Noise Directive distinguishes between. The criteria for inclusion on this list are:

- The suggestion or concrete measure is explicitly identified as such in one or more reactions following the publication of the consultation document
- The suggestion or concrete measure does not already exist (in the proposed form) on the longlist of measures in the consultation document

The criteria used in the assessment of the proposed measure or suggestion are the same as the criteria used for the longlist in the consultation document. In addition to the criterion of 'Feasibility by November 2024', the criterion 'Enforceability by November 2024' was made more explicit by adding it as a specific criterion. A proposed measure can help reduce noise nuisance, but without the measure being mandatory or unavoidable, its effect cannot be estimated or guaranteed by November 2024.

Note that not placing a potential measure or suggestion on the shortlist does not mean that the measure involved is insufficient in terms of quality or that it holds no promise

for the future, after realisation of the target by November 2024. For example, a proposed measure might not have been shortlisted because it cannot be realised by November 2024, despite scoring positively in other respects.

Measure/suggestion	Core of the measure/suggestion	Assessment of criteria								Position on the shortlist
Type of measure, per category		Safety	Feasibility by Nov 2024	Compliance with legislation	Quality of network connectivity	Reliability of operations	Spread of nuisance	Emissions	Modelling	Yes/no, including main argument
<b>Reduce noise at source</b>										
General fee differentiation	Encourage the use of quieter airplanes though differentiation of airport charges in general (more actively/in greater depth than described in the consultation document)	+	-	+	+	+	+	0	+	No, Not feasible by November 2024 due to the 3-year cycle. The next opportunity for new tariffs to take effect is April 2025
Night tariff differentiation	Encourage the use of quieter aircraft during nighttime period through differentiation of airport fees	+	-	+	+	+	+	0	+	No, Not feasible by November 2024 due to the 3-year cycle.
Ban most noisier airplanes	A ban or planned phase-out of the noisier planes through legislation	+	-	-	+	+	+	0	+	No, there should have been consultation about this measure based on the Environmental Noise Directive and Air Transport Treaties with the United States and Canada. Due to the required extra round of consultations, this measure cannot be legally specified before November 2024.
Mandatory use of the quietest categories of aircraft at night	Make the use of quieter aircraft during nighttime period mandatory through legislation	+	-	0	+	+	+	0	+	No, Not feasible by November 2024.
Fleet renewal	Accelerate/increase fleet renewal relative to the assumptions in the consultation document	+	+/-	+	+	+	+	0	+	Yes
<b>Spatial planning</b>										
Restart the environment fund	Set up a fund through which contributions can fund the improvement of the liveability and assistance to individuals who have been affected.	+	-	+	+	+	+	0	-	No, Does not affect noise nuisance
Enhance acoustic insulation for houses	Insulate more houses better and in a larger region around Schiphol.	+	-	0	0	0	0	0	-	No, The cost-effectiveness of spatial planning measures has already been calculated and shown in the consultation document
Noise adaptation of building methods	Building housing more intelligently can reduce the noise nuisance from aircraft.	+	-	+	0	0	0	0	-	No, Adapting building methods to allow for noise is something that can be used for new construction but it is not a solution for existing housing.



Measure/suggestion	Core of the measure/suggestion	Assessment of criteria								Position on the shortlist
Type of measure, per category		Safety	Feasibility by Nov 2024	Compliance with legislation	Quality of network connectivity	Reliability of operations	Spread of nuisance	Emissions	Modelling	Yes/no, including main argument
<b>Operations and/or procedures</b>										
Optimising take-off and landing procedures	Various optimisations of the operational procedures relating to take-off and landing	Various current and amended proposals that are relevant get a variety of scores on the seven criteria. In general, the said proposals are not feasible by November 2024 and lead in part to displacement of the nuisance and/or are impossible to enforce in various ways. See also the suggestion 'reallocation of airspace' that includes a number of measures that have already been suggested.								No, Optimisation of take-off and landing procedures is an ongoing process, including through the 'Minder Hinder' (Less Nuisance) Programme; new initiatives fit in with the regular cooperative links for this and help achieve 'Bending the curve in noise abatement'; see Chapter 1.
Specific: NDAP2 take-off procedure	Optimisation of the NDAP2 take-off procedure (use of NDAP2 800)	+/-	-	+/-	+	+	-	0	+	No, The procedure is already available and is being used by a number of airlines. The procedure is not enforceable; the pilot is allowed to make a different choice. The procedure may possibly exacerbate the nuisance for local residents close to the runway (because of lower flight paths).
Reallocation of airspace	Integrate a new allocation of airspace, routes and procedures that minimise the noise nuisance into the current programme for reallocating airspace	The airspace reallocation programme comprises several designs and principles that could lead to improvements in noise nuisance reduction. A variety of developments are being developed ready for implementation.								No, The bulk of the design work will be implemented from 2026 onwards and thus does not meet the requirements of being implemented by November 2026. The bulk of these improvements benefit 'Bending the curve in noise abatement' (see Chapter 1).
Reducing noise on the ground	Reducing noise on the ground, principally through electrically powered taxiing	+	0	+	+	+	+	+	+	No, Electrically powered taxiing affects the operations and has not yet been approved by LVNL. Moreover, the effect is highly localised.
Modify the fourth runway rule in line with 440,000 flight movements	The 'fourth runway rule' states that a fourth runway may only be used at peak times and for an average of 40 flights a day. The proposal envisages changing this average in line with 440,000 flight movements.	+	0	+	+	+	+	0	+	No, Not on the shortlist as a measure. Modification of the rule depends on whether the notification will result in a capacity reduction, and if so by how much.
Legally defining preferential runway use	Enshrining the use of take-off and landing runways in law that cause the least nuisance for the surrounding area.	+	0	+	+	+	+	0	+	No, Not on the shortlist as an explicitly stated measure. The Outline Paper states that the rules for strict preferential runway use will be set out in a ministerial regulation.





Measure/suggestion	Core of the measure/suggestion	Assessment of criteria								Position on the shortlist
		Type of measure, per category	Safety	Feasibility by Nov 2024	Compliance with legislation	Quality of network connectivity	Reliability of operations	Spread of nuisance	Emissions	
Stop using the East Runway	Do not use the East Runway any more for general aviation (exceptions are the police and special flights)	+	-	-	-	+	-	0	+	No Only a limited local impact, and it is to some extent only shifting the noise nuisance elsewhere
Opening Lelystad Airport	Moving flights from Schiphol to Lelystad Airport	+	-	-	+	+	+	0	+	No Decisions about Lelystad Airport cannot be taken before mid-2024 as announced in the Outline Paper; that is separate from this consultation (see Chapter 1).
<b>Operating restrictions</b>										
Nighttime closure	Closing the airport at night, including variations to the times	0	-	+	0	+	+	0	+	Yes
Excluding private jets and small business jets	Excluding general aviation	+	-	-	+	+	+	+	+	No, no legal resources. Very localised effect, only on the surroundings of the East Runway.
Controlling private jets as part of 'large commercial traffic'	The measure suggests getting private jets to operate within the remaining scope of the non-historic volume of large commercial traffic. That will result in less space being available for private jets.	+	-	-	+	+	+	+	+	No, no legal resources.
Selective nighttime reductions	Ban on freighter aircraft during the night.	+	-	-	+	+	+	+	+	No: selectively excluding certain categories of aircraft requires consultation.
Capping the number of flight movements further, based on a maximum for the level of aircraft noise that an individual may be exposed to		The actual measure in this case involves a criterion for setting an upper limit to the number of aircraft movements, rather than a measure that can be judged against the above criteria.								No The noise target (see Chapter 4) takes precedence for the selection of measures
Extending the nighttime regime		+	+	+	+	+	+	0	+	Yes



Measure/suggestion	Core of the measure/suggestion	Assessment of criteria								Position on the shortlist
Type of measure, per category		Safety	Feasibility by Nov 2024	Compliance with legislation	Quality of network connectivity	Reliability of operations	Spread of nuisance	Emissions	Modelling	Yes/no, including main argument
<b>Various</b>										
Increased supervision by ILT	Including more regular monitoring of the measures.	+	+	+	+	+	0	0	0	No ILT already monitors compliance with the legislation and regulations in which nuisance abatement measures are or will be embedded.
Voluntary sustainability measures	Do not impose obligations or limitations on airlines but ask each company to take measures voluntarily depending on their own insights	+	-	+	+	+	0	0	-	No Enforcement of measures or requiring compliance is the only way to reduce noise nuisance significantly and ensure it happens
Transitional fund for loss of jobs in the event of reductions in aircraft movements					Criteria not applicable					No Has no effect on noise nuisance
Social standards for aircraft companies to ensure that excess profits due to the scarcity of flights are passed on to the employees and/or society rather than shareholders					Criteria not applicable					No Has no effect on noise nuisance
Transitional fund for loss of jobs in the event of reductions in aircraft movements					Criteria not applicable					No Has no effect on noise nuisance
East Runway?		+	+	+	+	+	-	0	+	



Measure/suggestion	Core of the measure/suggestion	Assessment of criteria							Position on the shortlist	
		Safety	Feasibility by Nov 2024	Compliance with legislation	Quality of network connectivity	Reliability of operations	Spread of nuisance	Emissions		Modelling
Type of measure, per category									Yes/no, including main argument	
Implement the full 8-point plan of Schiphol airport	<ol style="list-style-type: none"> <li>1. New rules with clear limits for noise and CO<sub>2</sub> emissions</li> <li>2. The noisiest aircraft types are no longer welcome</li> <li>3. No more take-offs between 00:00 and 06:00; no more landings between 00:00 and 05:00</li> <li>4. No more private planes and small business traffic at Schiphol</li> <li>5. No extra runways</li> <li>6. Annual investment of €10 million in the surroundings and local residents</li> <li>7. Freight traffic protection</li> <li>8. Focus on people</li> </ol>								<p>Points 2, 3 and 4 have been assessed separately above. As regards noise nuisance, Point 1 is part of the development of a new set of rules that is referred to in Chapter 1. Point 5: the reservation for the second Kaagbaan runway has now been dropped. Points 6, 7 and 8 are not specifically about noise nuisance reduction, which is the subject of this Balanced Approach.</p>	
Substitution of planes with trains over shorter distances									<p>No See the explanatory notes to the criteria.</p>	
Apply alternative methods for slot allocation, such as e.g. the Quota Count (QC) system		+	-	-	+	+	+	0	+	<p>No, It is not possible to introduce a system such as this by November 2024</p>

- + = positive impact on criterion or no impact
- = negative impact on criterion
- o = impact cannot be determined or was not determined



# Overview of annexes

- Annex I Consultation document, Stakeholder Consultation Balanced Approach procedure for Schiphol, March 2023
- Annex II To70, Addendum Balanced Approach study Schiphol Airport, August 2023
- Annex III Decisio and Beelining, Measuring the cost-effectiveness of noise mitigating measures for Schiphol Addendum, August 2023
- Annex IV AT Osborne, Consultatierapport Balanced Approach, augustus 2023
- Annex V LVNL, Uitvoeringstoets combinaties mogelijke maatregelen Balanced Approach Schiphol, juni 2023
- Annex VI LVNL, Uitvoeringstoets alternatieve maatregelen Balanced Approach, augustus 2023
- Annex VII ILT, Impact assessment ILT op maatregelen Balanced Approach Schiphol, mei 2023
- Annex VIII Destination analysis for adequate connectivity
- Annex IX Q&A's technical cooperation sessions
- Annex X Beantwoordingsnota aanvulling Actieplan Geluid Schiphol

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