Oslo Airport, Gardermoen

SNOW PLAN 2026 – 2027

Photo by Eirik Førde

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1 PREFACE

This version reflects the 2025/2026 season. If there is an update, the entire document will be replaced with new date and version number. The aim is to disseminate information in a simple and standardized way. The regulation of responsibilities with regards to external companies and organisations working at the airport is elaborated in Airport Regulations (AR) and licence agreements, not via this document.

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2 INTRODUCTION

The purpose of Oslo Airport's Snow plan is to describe the airports response to a snow and/or ice event. The document contains a brief description of how the airport set priorities to minimise disruptions for flight operations during winter conditions. A main ambition is to always have one runway operational, and the tactical arrival delay is normally around 10-20 minutes.

Reporting of runway surface conditions is according to the Global Reporting Format (GRF) which is a globally harmonized methodology for assessing and reporting runway surface conditions developed by ICAO.

The airport's preparations for winter operations are a continuous process with a planning phase, operational phase, an evaluation phase and an adjustment phase.

2.1 Snow committee

AMC1 ADR.OPS.B.035(a)
(a) the Snow Committee members and the person in charge of the winter operation, with a chain of command giving a breakdown in duties

The Snow committee consist of handling operators, de-ice operators, APOC, Department of Quality, Department of Apron management, AOC (Airlines), Department of Airfield Operations, Tower, and Department of Flight Operations. The committee is responsible for establishing the quality requirements, detailing how the overall cooperation shall be conducted and agreement of responsibility during winter operations. When the committee has concluded, each responsible department with start detailed planning and adjust plans according to the evaluation.

When the winter season starts, the day-to-day operations are handled by APOC, ATC, Department of Airfield operations and operators.

2.2 Planning and Communications

AMC1 ADR.OPS.B.035(a)
(b) methods of communication between aerodrome operations, air traffic services, and the MET provider;

APOC - Airport Operations Centre will during winter operations, coordinate and evaluate all the airports' resources and expected weather in relation to the planned traffic demand on a Day -2 basis. Based on the expected situation APOC will coordinate, with all the relevant parties, the need for necessary infrastructure and personnel to meet the expected capacity for the next day. Departments involved in the process described below is in addition to APOC is the Airfield Operations department, the tower supervisor (TWR SUP), De-ice Service Providers (DSP) and Apron Service Providers (ASP).

Activity 1: MET office will issue a weather brief.

Activity 2: APOC ASUP will assess the weather brief and determine of the forecasted weather is considered a normal winter day with no need for extra planning, or if a task force is needed to plan for the expected weather.

Activity 3: If task force is needed, APOC ASUP, TWR SUP, ASP/DSP and Airfield operations will conduct a Task force meeting. Criteria for establishing this task force is if expected taxi time (AXOT) will exceed 40 minutes.

Activity 4: Based on the plan formed by the task force, all participants must ensure that staffing is sufficient, and equipment is ready for the planned activity.

Activity 5: APOC ASUP will deliver the plan to TWR SUP the day before the day of event, APOC ASUP will also deliver morning readiness report to TWR SUP on the day of event.

Activity 6: All actors will on the day of event assess the plan and adjust when needed.

Activity 7: Evaluate the activities (This activity is not depicted on the simplified flow chart above).

Based on the clarifications done in the process, APOC will deliver a short summary of the operational plan to the de-ice operator and Department of Airside Operations, the evening before, detailing planned RWY in use, capacity and de-ice strategy based on the forecasted weather.

This process can occur in parallel depending of the forecasted weather.

AMC1 ADR.OPS.B.035(a)
(g) an alerting system in order that sufficient warning is given to all bodies concerned;

If it is considered that the conditions may cause challenges and restriction on capacity, the Airport Operations Manager (AOM) will be informed. APOC will activate local procedures to inform all operators, handling agents and all other relevant parties operating on and at the airport about the expected consequences. One of the actions that may be implemented is to reduce specific predefined areas for snow clearing/preparation. Reducing such these areas will be evaluated according to the impact on capacity and the airports' ability to keep the airport open.

3 SNOW CLEARING AIRSIDE

Snow clearing is conducted in groups, called snow clearing group (SCG)

Special predefined routes are planned for the separate groups, and it takes about 80 minutes from the start of snow clearing a runway until both runways, including associated defined taxiways, are cleared and are ready for a new start. The airport defines maximum allowed time for clearing a runway to 15 minutes.

The SCG are led by a Global Report Format inspector (GRF INSPECTOR) who also is responsible for runway condition assessment and reporting. The GRF INSPECTOR has direct contact with the air traffic control tower (ATC TWR) and is operating from one of three available vehicles equipped with all necessary tools: for communication, assessment of friction, transmitting breaking action reports and other tools.

There are 5 individual SCGs and each SCG consists of machines (sweepers) able to plough, sweep, and blow. The sweepers are followed by a snow blower and wheel loaders. As needed, spreaders laying de-icing agent or sand on the runways/taxiways come last.

The responsibility of the SCG is divided into different areas:

- SCG 1 clearing RUNWAY and TAXIWAYS, available H24/7
- SCG 2 clearing RUNWAY and TAXIWAYS, available H24/7
- SCG 3 clearing MAIN TERMINAL AREA TAXIWAYS, on standby, called in if needed.
- SCG 4 Clearing the GA area, available H24/7
- SCG 5 Clearing AIRCRAFT STANDS at main terminals, on standby, called in if needed.

When snow clearing is completed, the runway condition is judged by the GRF INSPECTOR, and a Runway Condition Code (RWYCC) is assessed and set. The RWYCC is sent automatically to the ATIS and is reported to ATC TWR, which in turn, if needed, will provide the information to pilots via radio.

When the weather conditions are so adverse that normal snow clearance is not enough to maintain an acceptable condition on RWY/TWY/Apron, the scalable snow removal plan concept will be used.

3.1 General concept of snow removal

AMC2 ADR.OPS.B.035(a)

ESTABLISHMENT OF PRIORITIES

The aerodrome operator should establish the order of priority for snow, slush and ice clearance, from the movement area, in consultation with the air traffic services, rescue and firefighting services and aircraft operators.

AMC1 ADR.OPS.B.035(a)

(i) deployment of equipment and tactical approaches to be used;

Snow clearing of the runway and taxiway system is normally conducted in 3 separate phases:

Phase 1: Runway and taxiways with necessary exits and emergency road for actual runway in use.

Most used phase during day when traffic is high unless phase 2 is deemed necessary.
RWY clearing time maximum allowed is 15 minutes.

Phase 2: Runway including edge lights, shoulders on runways and taxiways, all runway exits, clearing of snow edges/banks.

This phase is used during heavy snowfall and when needed, in low traffic and during night to prepare the airport for the coming days.

Phase 3: Runway safety areas and edge profiles - clearing of navigation instruments and critical areas, direction signs and lighting systems that are necessary. Post snow clearing, such as removing ice and snow to prevent icing around signs, lamps, and the like, as well as control and preparing of snow dumps.

Phase 3 may be conducted at night and during periods of low traffic, when phase1/2 is not needed, so the airport is prepared for future precipitation.

3.2 Priority surfaces to be cleared

AMC1 ADR.OPS.B.035(a)
(d) priority of surfaces to be cleared, and clearance limits for aircraft using the aerodrome

The priority is to keep all areas necessary for aircraft to land, take off and taxi open at all times.

a. Main runway / runway in use
b. Access between the runway in use and the fire stations
c. Taxiway between the stands and the runway in use
d. If relevant, designated places where fire trucks are remotely parked
e. Aircraft stands
f. Any other area that are necessary for aircraft to take off and land (e.g. around navigation facilities)

The maneuvering area is cleared of snow according to a set pattern, this pattern ensures the safety distances to aircraft and vehicles. Aircraft and other vehicles moving close to the area being cleared of snow are told to "old short". Where the aircraft or car stops depends on the "Visual slant range".

"Clearance limit" safeguards the safety of aircraft with respect to sensitive areas and other infrastructure.

3.2.1 Runway entry/exit during normal winter operations

AMC1 ADR.OPS.B.035(a)(2)
REMOVAL OF CONTAMINANTS - The aerodrome operator should ensure that:
(a) snow, slush, and ice are removed from the surface of a paved runway, as rapidly and completely as possible, to minimise accumulation;
(b) operational taxiways are kept clear of snow slush or ice to the extent necessary to enable aircraft to be taxied to and from an operational runway; and
(c) those parts of the apron which are intended to be used by aircraft are kept clear of snow, slush or ice, to the extent necessary to enable aircraft to manoeuvre safely, or where appropriate, to be towed or pushed.

The available runway entry/exits are dependent on the time allowed to sweep a runway, amount of precipitation and traffic demand. The minimum time allowed to sweep one runway is 15 minutes and does not allow all the entry/exits to be cleared of contamination. The table indicate the entries/exits that will be cleared in phase 1 and 2.

Runway direction	Phase 1 entry/exit cleared	Phase 2
01L	A1, A2, A5, A6, A7, A9	All entry/exit cleared
01R	B1, B5, B6, B7, B9	All entry/exit cleared
19L	B9, B8, B5, B4, B3, B1	All entry/exit cleared
19R	A9, A7, A5, A4, A1	All entry/exit cleared

If an entry/exit is not open, information will be provided either from ATC on radio or via ATIS.

3.3 Scalable snow removal concept

If weather conditions are so severe that it is not possible to maintain satisfactory conditions with normal snow removal, the scalable snow removal concept will be used.

The concept consists of different scenarios, where Scenario 0 is defined as “normal winter operations, followed by "Scenario 1," "Scenario 2," and "Scenario 3." The purpose of establishing scenarios is to ensure predictability for all parties, enabling more efficient planning and execution of air traffic operations.

3.3.1 Scenario 0 – Normal winter operations

Scenario 0 is defined as normal winter operations, as described in this document.

3.3.2 Scenario 1 – Prioritization and suspension of areas

Scenario 1 is a formalization of activities that have been practiced and consists of:

- Suspension and/or closure of taxiways and aprons.
- GRF inspector requests that Snow Clearance Groups get priority over airplane movements.

Expected capacity will be around 18-24 movements per hour.

3.3.3 Scenario 2 – Releasing Snow Clearance group 2

When conditions require it, Scenario 2 will be implemented. This involves releasing Snow Clearance Group 2. Releasing Snow Removal Group 2 means that Group 2 does not follow a predetermined pattern but instead focuses on areas with the greatest need.

In addition to already suspended areas in scenarion1, TWY M, T and V will be suspended in Scenario 2.

The expected time Snow Clearance Group 1 use on a full round of sweeping in Scenario 2 is approximately 50 minutes.

When Scenario 2 is implemented, the conditions are so adverse that going back to normal winter operations (Scenario 0) will require a prolonged time of snow removal and preparations, including opening closed TWY’s and intersections.

3.3.3.1 Limitations for Released Snow Removal Group

If Group 3 is working on the east side of the central area, Group 2 cannot clear the west side of the central area. Group 2 must remain on the same side as Group 3 if Group 2 is to assist in the central area.

Note: Deviations from this limitation may occur in certain situations if the tower and GRF Inspector agree to deviate from the restriction.

3.3.3.2 Open Exits for RWY 01 Operations in Scenario 2

- TWY A1, TWY A6, and TWY A9.
- TWY B1, TWY B7, and TWY B9.

3.3.3.3 Open Exits for RWY 19 Operations in Scenario 2

- TWY B1 and TWY B9.
- TWY A1, TWY A4, and TWY A9.

3.3.3.4 To and from GA

- Landing on RWY 01 and RWY 19: TWY C3 is open in both directions.
- Departure RWY 01: Exit via TWY C3, proceed down the western RWY, and exit via TWY A5.
- Departure RWY 19: Exit via TWY C3, proceed down the western RWY, and exit via TWY A4.

Expected capacity is 6-18 movements per hour.

- *Upon implementation, the tower will most likely set a rate of around 6-8 movements per hour, then adjust based on the situation.*

3.3.4 Scenario 3 – Convoy driving

Scenario 3 is defined as the final possible action before closing the runways for all air traffic. Weather conditions and/or equipment/personnel status must be so poor that this is the only viable way to handle a limited number of aircraft movements, typically around 6 movements per hour or less.

The purpose of Scenario 3 is to ensure that the runway remains open, even during prolonged extreme weather conditions.
In Scenario 3, only the western runway will typically be in use for both departures and arrivals (SRO). SRO may already have been implemented in Scenario 2.
The concept is that the terminal area is cleared with a focus on the stands (and the surrounding areas) that will be used for departures/arrivals in the near future.

For departures, a snow clearance group will clear a path ahead of a set number of aircraft from the central area to the "holding position." Similarly, for arrivals, a snow removal group will clear a route to the central area.

The second snow removal group will focus solely on keeping the western runway open.

SRO operations can be carried out without triggering the implementation of Scenario 3.

3.4 Suspension criteria

AMC1 ADR.OPS.B.035(a)
(l) criteria for the suspension of runway operations.

Minimum criteria for suspending operations on the movement area:

a. Clearance between snow and engine/propeller shall be at least 30 cm.
b. The clearance between snow and the underside of the wing shall be at least 50 cm.
c. When markings, signs, or other compensatory measures such as centre lights, guiding lights, edge lights are not visible or follow-me is not available.
d. The distance to the snow dump on TWY and APRON must be in accordance with aircraft code letter.

Aircraft Code Letter	A	B	C	D	E	F
Distance from TWY centre line	15.5 m	20 m	26 m	37 m	43.5 m	51 m
Distance from centre line on APRON	12 m	16.5 m	22.5 m	33.5 m	40 m	47.5 m
Distance to aircraft on stand	3 m	3 m	4.5 m	7.5 m	7.5 m	7.5 m

Maximum permitted contaminated depths on runway in use:

Location	Slush	Wet snow	Dry snow	Note
Runway	13 mm	25 mm	60 mm	All aircraft types

The airport will always clear the runways in full width, 45 m, but should a situation arise when this is not possible, the following criteria will be considered used:

- Snowbanks allowed on the runway with minimum distance to centre line: 20M.
- Maximum height of snowbanks:

Slush	Wet snow	Dry snow
20 mm	50 mm	130 mm

AMC1 ADR.OPS.B.035(a)
(j) general principles to be followed in deciding when to close runways for snow clearance and designation of management personnel authorised to take the decision;

When conditions are such that the GRF inspector deem it necessary to suspend operations on a given portion of apron, taxiway or runway the GRF inspector will inform ATC (tower) and will mark the area as “closed” in the inspection tool.

If an area is planned closed, other rules will apply, such as a plan for where to place barriers, light, marking and information in advance, such as NOTAM or AIP SUP.

3.5 Designated snow dumping or melting areas

AMC1 ADR.OPS.B.035(a)
(f) designated snow dumping or melting areas;

Designated areas for snow dumping and/or melting areas are defined in drawings, archived in Avinor’s document management system. Drawings are available upon request.

- Snow dumping area Deice platform A North (OSLAS-AC-BIO-70-0001)
- Snow dumping area Deice platform A South (OSLAS-AC-BJO-70-0001)
- Snow dumping area Deice platform B North (OSLAS-AC-CIO-70-0001)
- Snow dumping areas Airside (OSLAS-AF-HEO-00-1010)

3.6 De-ice

Gardermoen Airport has two main de-icing pads: A South for RWY 01L operations and B North for RWY 19L operations. On days when it is considered that de-icing capacity cannot meet the runway capacity, de-icing pad A North may also be used if needed. On days without precipitation, "one-step" de-icing will be performed with an expected delay of 10 minutes. When there is heavy precipitation and “two-step” de-icing is used, the delay can be up to 30 minutes.

The general procedures used during de-ice is described in AIP Norway AD 2.20 ENGM, item 11. For code F aircraft additional procedures is described in AD 2.23, item 4.3.

The allocation of de-ice bays is coordinated by the airports Apron Management Department.

Aircrafts on the way to assigned de-ice pad will be transferred from ATC to Apron Management that will allocate the de-ice bay the aircraft shall taxi onto. Callsign on this unit is “APRON”.

When the aircraft is on correct de-ice bay and pilot on code C aircraft reports “Park brake set, ready for de-ice” or a pilot on code D, E, F reports marshaller in sight, the pilot will be transferred from “APRON”, to the relevant de-ice service provider frequency, callsign “ICEMAN”.

During winter operations that require extensive de-ice activity, aircraft that do not require de-ice might be cleared to holding point A2 (01 operations) or B8 (19 operations). ATC must be informed if departure from other RWY intersections is desired.

3.7 Autonomous snow clearing

For optimized and efficient snow clearing of taxiways and runways, OSL will during winter 2024/25, continue to conduct testing of PSB (plough, sweep, blow) vehicles that can be controlled both manually and autonomously.

During the test period, such vehicles will have a safety driver on board who can monitor and take care of the operation, so that the requirements for the airport's winter operation are not exceeded. In manual operation, each individual PSB in a snow clearing group, is driven by an operator, monitored by the GRF INSPECTOR.

4 EQUIPMENT AND CAPACITY

To conduct quick, safe, effective, and environmentally friendly snow clearing, machinery and equipment with the latest technology and performance standards are required. OSL have more than 80 vehicles of different types to cater for all the maintenance necessary throughout the year.

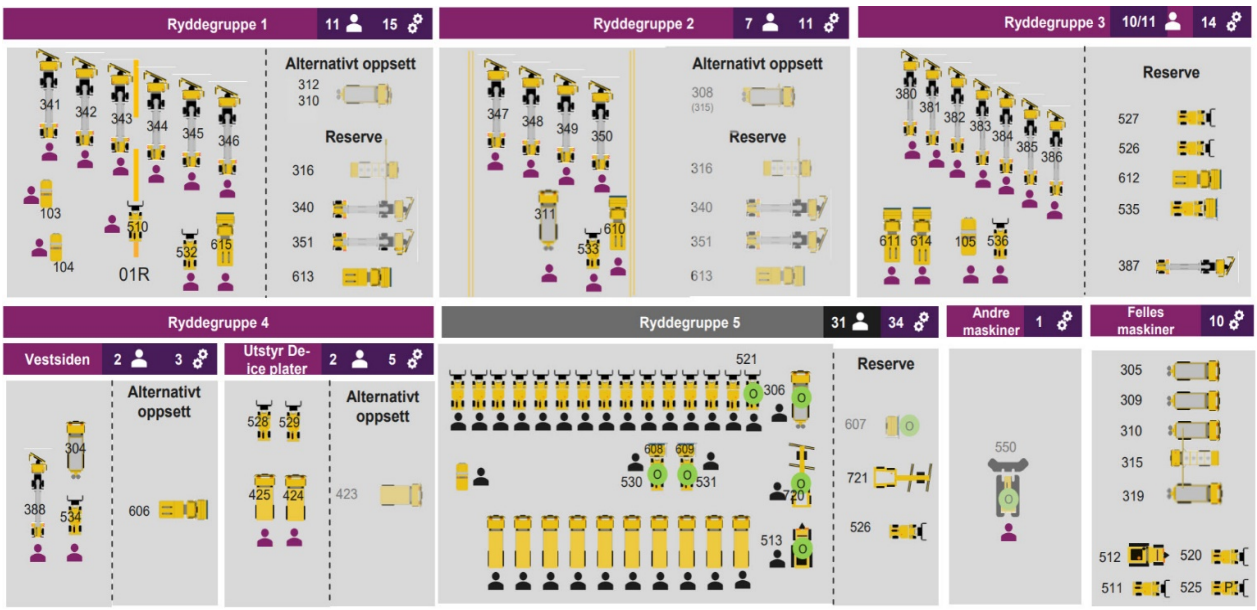
For the winter season 2025/26 the airport has sweepers which each have a clearing width of 7.5m and 5.5m.

> ***AMC1 ADR.OPS.B.035(a)***
> *(c) the equipment available for snow clearance and surface treatment. This should include equipment for ploughing, sweeping, and blowing snow and application of materials.*

Below is a list of the most used snow clearing machines and the quantity:

Wheel loader:	**15**
Sweeper RS600:	**12** (clearing width of 7.5m)
Sweeper RS400:	**16** (clearing width of 5.5m)
Sander:	**8**
Snowblower:	**6**
Unit snowblower:	**4**
Chemical spreader:	**3**
Tractor:	**2**
Snowcat	**1**
Road grader	**2**
Friction vehicles	**3**

An external contractor is used for snow clearing on aircraft stands.



4.1 Chemical and sand

AMC1 ADR.OPS.B.035(a)(1)

USE OF MATERIALS FOR DE/ANTI-ICING OF PAVED SURFACES

(a) The aerodrome operator should use materials to remove or to prevent the formation of ice and frost on aerodrome pavements or to improve runway surface friction characteristics when conditions indicate that their use could be effective. Caution should be exercised in the application of the materials so as not to create more slippery conditions.

(b) The aerodrome operator should, as far as practicable, avoid harmful effects on environment, aircraft or pavements when using chemicals to remove snow, slush, or ice from operational surfaces.

AMC1 ADR.OPS.B.035(a)(2)

INFORMATION ON ALKALI-ORGANIC RUNWAY DE-/ANTI-ICING SUBSTANCES

Oslo Airport operates according to *EU 139/2014 ADR.OPS.B.036 (b)(1)(i)* and the airport has permission to use materials for movement area treatment, ref AIP Norway ENGM AD 2 AD 2.7:

- KFOR – Potassium formate fluid (abbreviation used in RWYCC)
- SAND - The sand used is dry sand from a silo and shall have an aggregate size that must be able to pass a 4 mm square sieve.

Capacity:

De-icing Chemicals Liquid	160 m³	AVIFORM L50
De-icing Chemicals Granulas	57 tons	AVIFORM
Sand	675 tons	

4.1.1 Chemical

OSL use AVIFORM L50, a liquid de-icing agent based on 50 % potassium formate on RWYs and TWYs.

The AVIFORM L50 satisfies all requirements of airports on environmental properties, technical standards, efficiency, performance, and product compatibility of liquid de-icing agents and is approved according to SAE AMS 1435D.

4.1.2 Sand

Sand is normally used on Stands and push-back sones, The amount laid out should normally be approx 30-60g/m2. Efforts are made to remove sand that no longer has operational

significance, in order to protect fan blades and aircraft as much as possible. In situations where there may be or is experienced slippery conditions on runway exits, sand can be used to improve friction also here.

4.1.3 Manpower

AMC1 ADR.OPS.B.035(a)
(h) the manpower available, including staff for equipment maintenance arrangements for shifts, and call-out procedures;.

The airport is fully staffed with extra winter personnel between October and April. Snowfall outside this period is handled by the full-time staff.

5 REPORTING

AMC1 ADR.OPS.B.035(a)
(e) collection of information for RCR and dissemination of this information;
(k) methods of assessing and reporting the surface conditions;

The general policy is that a runway where a Runway Condition Report (RWYCC) where the RWYCC is above 0 is considered safe for the airport to operate on. When RWYCC is 0, no associated flight performance documentation is available, and the airport is considered closed.

When one pilot has reported a LESS THAN POOR runway braking action the aerodrome operator must re-assess the runway surface condition and consider the suspension of operations on that runway.

Measures for winter field maintenance consist of:

- Highly trained GRF INSPECTORs with experience from operational winter conditions.
- Inspection of the movement area including measurement of snowfall depth and providing updated RWYCC, on the runway system
- Reporting of conditions in the movement area
- Improvement measures of such a scope that the priorities defined in international, national, and local regulation is achieved.

Winter field maintenance at OSL is conducted in a way and to such an extent that airport operations can continue without jeopardising aviation safety and if possible, without interfering with air traffic capacity.

Publication of SNOWTAM follows the general rules of Avinor described in AIP Norway AD 1.2, point 2.7. In addition, the RWYCC is automatic sent to and updated on ATIS.

When measurements and assessment of the runway status have been performed, pilots will be informed via radio from ATC, until ATIS is updated with RWYCC and contamination.

In a weather situation where improvement work or measurement of runway status cannot be conducted at the same time as air traffic, the Operations Maintenance Manager or someone appointed by that person shall decide, in consultation with the airport's air traffic management unit, to close part or all the movement area. In such a case, the length of the closure shall be determined and announced via NOTAM. At the airport, up-to-date information about the quality of field maintenance and about winter field maintenance shall also be made available at the airport's APOC.

6 LOCAL PROCEDURES AND REGULATIONS

6.1 Slippery conditions on apron

With reference to local procedures described in IN05076 Apron Management Services - Operasjoner under ekstremvær (adverse weather) og andre ugunstige værforhold it is handler's responsibility to assess the conditions on stands. If the handler considers the conditions to not provide a sufficient safety level, the handler should contact their operations center, that in turn will contact APOC. Aircraft taxing in should be stopped until corrective actions is taken to ensure a sufficient safety level.

6.2 Low visibility

Snow clearing operations are performed in parallel with aircraft movement down to RVR 400m. When the visibility is below RVR 400m the choice is to prioritize, either air traffic or snow clearing. ¨

6.3 Water and Environment

Department of Water and Environment monitors and manages the environmental requirements imposed by the authorities. This is relevant to winter operations when chemicals are used on runways and aircraft de-icing. If limit values are exceeded, this can affect the available infrastructure and thus the airport's capacity.