



AIRPORT

Water Resilience Guide



For airport operators water resilience is about Passenger Experience, Compliance & Operational Continuity

Welcome to your guide on Water Resilience for Airports. Airports are unique environments: part transport hub, part shopping centre, part industrial facility. Water plays a critical role in passenger services, safety, and operations from toilets and catering to de-icing and firefighting. This guide sets out where water is used, what risks airports face, and how smart management can reduce costs, improve resilience, and strengthen compliance.



Why Water Matters to Airports, Right Now

- **Passenger Pressure:** Toilets, food, and retail facilities must be reliable and high standard.
- **Operational Risk:** Water is critical for cooling, firefighting, and aircraft cleaning.
- **Environmental Scrutiny:** Regulators are tightening oversight of de-icing runoff and wastewater discharge.
- **Cost Savings:** With millions of passengers annually, small efficiencies in passenger areas add up to big savings.

Airports handle huge passenger volumes and complex operations, making water efficiency essential to protect reputation, manage risk, and control operating costs.

Your Water Footprint: Where It Goes & Why It Matters

- **Passenger Facilities (40–50%):** Toilets, washrooms, food & beverage.
- **Cooling & HVAC (15–20%):** Chillers and humidifiers in terminals.
- **Aircraft Cleaning & Maintenance (10–15%):** Cabin cleaning, exterior washdowns.
- **Firefighting & Safety Systems (5–10%):** Training, testing, and readiness.
- **Runoff & De-Icing (variable, high seasonal impact):** Glycol-based fluids in winter can dominate water management challenges.
- **Landscaping & External Areas (5%):** Irrigation, green spaces, access roads.

Passenger services dominate visible use, but cooling and de-icing create major hidden risks and costs that must be carefully managed.

Quick Wins: Immediate Savings, Minimal Effort

- **Low-Flow Fixtures:** Upgrade passenger washrooms (aerators, dual-flush toilets).
- **Night Flow Monitoring:** Identify leaks in terminals and facilities.
- **Efficient Catering Equipment:** Fit water-saving dishwashers in concessions.
- **Staff Training:** Cleaning staff briefed on efficient washdown practices.
- **Passenger Nudges:** Signage for water-wise behaviour in restrooms.

Small-scale, low-cost interventions can save thousands of litres daily without disrupting passenger service or operations.

Smart Investments: Future-Proofing for Long-Term Value

- **Rainwater Harvesting:** Supply for toilet flushing and irrigation.
- **Greywater Recycling:** Capture from washrooms for reuse in non-potable systems.
- **Smart Metering & Zoning:** Sub-meter terminals, piers, and airside vs landside to track anomalies.
- **Closed-Loop Aircraft Wash Systems:** Recycle water from cleaning bays.
- **De-icing Fluid Recovery:** Install glycol collection and treatment to prevent contamination.
- **Cooling Optimisation:** Shift toward systems with reduced water consumption (e.g. air-cooled chillers).

Capital investments provide resilience against rising costs, reduce environmental risk, and demonstrate sustainability leadership to regulators and passengers.

Your Hidden Drain

- **Toilets in High-Volume Terminals:** Leaks and running flushes multiply at passenger scale.
- **Food & Beverage Outlets:** Inefficient kitchens and dishwashing.
- **Cooling Tower Blowdown:** Poorly optimised cycles waste thousands of litres.
- **De-icing Runoff:** Can cause both water waste and serious compliance fines.

Hidden drains are often overlooked but can cost airports millions annually and create serious compliance failures if not addressed.

Engage Stakeholders: Build a Water-Wise Airport Culture

- **Retail & Concessions:** Require efficient kitchens, dishwashers and cleaning regimes in tenancy agreements. See our guide on restaurants for more detailed information
- **Ground Handling & Cleaning Contractors:** Train and monitor best practice for aircraft and apron cleaning.
- **Passengers:** Subtle nudges and signage in washrooms to reduce waste and encourage reporting of leaks.
- **Airlines:** Collaborate on efficient turnaround cleaning and minimised on-wing water use.
- **Regulators & Local Authorities:** Coordinate on de-icing discharge, consent conditions and emergency response.

Aligning all parties who use or manage water at the airport ensures savings are embedded across the whole site, not just within the operator's direct control.



Be Prepared: Manage Water Supply & Regulatory Risk

- **Know Your Risks:** Map seasonal peaks (de-icing season), drought exposure and single-point supply failures.
- **Backup Supplies:** Secure bowzers, alternative sources or emergency storage for critical functions.
- **Contingency Plans:** Procedures for maintaining hygiene, firefighting readiness and terminal services during outages.
- **Permitting & Discharge:** Review abstraction licences, trade effluent consent and chemical handling procedures (especially glycol).
- **Testing & Training:** Regular drills for spill response and effluent containment.

Airports run continuously; supply interruptions or non-compliant discharges can cause immediate operational, financial, and reputational impacts, making resilience planning non-negotiable.

Sustainable Drainage & Runoff Control (SUDS and De-Icing Management)

- **De-Icing Capture & Treatment:** Install glycol collection, separation and treatment systems in stands and arrival areas.
- **Permeable Surfaces & Swales:** Use permeable paving in car parks and landscaped areas to reduce peak runoff.
- **Settlement Basins & Oil Interceptors:** Capture contaminated runoff from aprons and wash bays before discharge.
- **Green Infrastructure:** Rain gardens, detention basins and reedbeds for secondary treatment and biodiversity benefits.
- **Operational Controls:** Locate de-icing away from direct drains, optimise chemical application, and recover where possible.

Airports generate both high water volumes and high-risk contaminants; SUDS and targeted runoff controls reduce discharge risk, sewerage charges, and environmental harm.

Next Steps: Your Action Plan

- Baseline: Sub-meter terminals, airside operations, concessions and de-icing areas to get a granular picture.
- Walkthrough: Joint inspections with operations, retail, ground handling and environmental teams to identify quick wins.
- Prioritise: Fix leaks and inefficient fixtures first, then plan for de-icing capture and recycling investments.
- Monitor & Report: Implement AMR/smart metering and publish internal KPIs for water per passenger or per flight movement.
- Procure: Build water efficiency and discharge controls into concession and contractor tender documents.

A step-by-step plan gives immediate results while building a framework for long-term savings, compliance, and stronger ESG performance.

Evidence & Sources

- ACI Europe Airport Carbon Accreditation – includes guidance on water management in sustainability roadmaps.
- CAA Environmental Reporting – requires disclosure of resource use and environmental impact by UK airports.
- London City Airport Sustainability Reports – show strategies on water efficiency, passenger washroom upgrades, and glycol management.
- Glycol Runoff Studies (UK & EU Airports) – research into treatment wetlands and collection systems to reduce COD/BOD impact on watercourses.
- Sustainable Drainage (SUDS) Guidance – CIRIA C753, practical design approaches relevant to airports for runoff and pollution control.



Need Support? Let's Talk

Want support optimising your airport's water resilience?

We help operators reduce costs, minimise risk, and meet rising sustainability expectations without disruption to passengers or operations.

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