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IBM Maximo for airport fleet and GSE management

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Audience	Asset management, fleet engineering and operations leaders responsible for airport Ground Support Equipment (GSE) and airside vehicle fleets
Purpose	Reference note describing how IBM Maximo addresses fleet management for an airport GSE estate

Fleet management is one of the longest-standing capabilities in IBM Maximo. The Transportation industry solution is delivered as part of **Maximo Application Suite (MAS) Manage** under the *Transportation* add-on, and was historically known as *Maximo for Transportation*. It extends the core enterprise asset management (EAM) data model with the structures, screens and processes that vehicle and mobile-equipment fleets need. It is a configuration of MAS Manage, not a separate product alongside it.

For an airport, that capability lands directly on the GSE estate: pushback tractors, belt loaders, container loaders, baggage tugs, GPUs, ACUs, ASUs, de-icing trucks, water and lavatory trucks, catering hi-lifts, runway sweepers, fire and rescue, snow ploughs, and the long tail of light commercial and staff transport.

This note is for the head of asset management, the workshop manager and the IT lead at an airport operator, GSE handler or ground services provider who is evaluating Maximo for the GSE fleet. It describes what Maximo brings to that estate, how those capabilities work in airport operations, and what they mean for the asset management team.

1. How Maximo frames an airport fleet

Maximo treats every vehicle and every piece of GSE as an asset in its own right, with the attributes fleet engineers actually use: VIN, registration, make, model, year, body type, axles, engine, transmission, fuel type, capacity, and ownership status (owned, leased, or contractor-operated). Each asset carries its own meters (odometer, hour meter, cycle counter, fuel-burn, idle time, charge cycles), and several can run side by side on the same record. Maintenance, cost, compliance and analytics all run off that one record, not parallel registers.

Components such as engines, batteries, hydraulics and tyres are tracked **by position**. A tyre rotation, a battery pack replacement or an engine swap is a recorded event with full lineage rather than a free-text comment in a closed work order. For a workshop running rotable pools of GPU engines or pushback prime movers, this is what turns *"the engine on tractor 14"* into a serial-numbered asset with its own history, costs and warranty.

Warranty is tracked at vehicle and at component level, against time, distance, hours or any meter. A pushback tractor under a five-year / 10,000-hour OEM warranty is correctly handled, including the points where a workshop event would invalidate the warranty if a non-OEM part is fitted.

2. Maintenance: preventive, condition-based, and the path to predictive

Preventive maintenance schedules can be triggered by date, distance, hours, fuel consumed, cycles or any other meter. Combinations are native: *every 10,000 km or six months, whichever first* is configuration, not customisation. Master PMs apply across an entire class of asset, so all GPUs, all baggage tugs or all de-icing trucks share one regime that is revised in one place and propagates to every affected unit.

This matters at airport scale because GSE fleets are increasingly **mixed-energy**. Diesel pushback tractors sit alongside electric belt loaders and hybrid baggage tugs. The PM logic for an EV is meter-driven on charge cycles, depth of discharge and battery state of health, not on litres burned. Maximo handles diesel hour-based PMs and EV cycle-based PMs in the same asset register, against the same workshop, against the same KPIs.

Driver and operator inspections (pre-trip, post-trip, daily walk-around) are native objects on **Maximo Mobile**: a checklist on the apron with photos, where a failed item creates a work order without a paper hand-off. The result is an audit-grade record in place of laminated cards.

The upgrade path beyond preventive is condition-based and predictive maintenance. Once telematics and IoT signals are flowing into **MAS Monitor** and **MAS Health**, the same asset that runs on calendar-and-mileage PMs can move to condition-based PMs without changing the asset record. Battery health on electric belt loaders, vibration and oil analysis on tractors, brake-wear telemetry on baggage tugs: the platform absorbs them and the maintenance regime adapts.

3. Work management built around how a fleet actually breaks

Three fleet-specific work patterns are native in Transportation, and each maps onto something an airport workshop already does.

- **Campaigns and service bulletins.** An OEM issues a campaign that affects every tractor with a particular axle assembly built between two dates. Maximo identifies the affected VINs, raises the work, schedules it against operational windows, and tracks completion across the fleet. The output is a closure rate you can defend in a review.
- **Recalls.** Modelled the same way as campaigns but with regulatory weight. Closure of a recall is auditable down to the VIN, which is the whole point.
- **Road-call and breakdown work.** A defect raised on the apron becomes a work order with downtime captured properly, including operational impact (stand released late, turnaround disrupted), not just labour hours. That bridges the language of the

workshop and the language of operations: a workshop talks in hours of downtime; operations talks in stands and turnarounds.

Standard Repair Times (SRTs), labour codes, job plans and craft authorisations give a benchmark layer. When a job takes longer than it should, the variance is visible in the data rather than buried in the workshop schedule.

4. Parts, rotables and tyres

Most fleet maintenance products handle consumable parts adequately. The capabilities that distinguish Maximo at airport scale are above that line: rotables, tyres, fuel and fluid management.

Rotables are the components that get removed, refurbished and reinstalled. An engine has its own asset record with its own meters, history and cost. It can be removed from tractor A, sent for rebuild with full traceability, returned to stores and installed on tractor B without losing its lineage. For a workshop running rotable pools of GPUs, pushback engines or hydraulic packs, this is the difference between knowing the cost of an asset and inferring it.

Tyres are a small specialist case in their own right: tread depth, rotations, retread cycles, position-on-vehicle, scrap reasons. Out of the box, Transportation handles them with a tyre-management screen the workshop will recognise on day one.

Fuel and fluid transactions feed in from the fuel system (Fuelmaster or the OEM equivalent). Consumption per asset, per class, per shift becomes the analytic that pays back the integration. For an airport tracking energy by GSE class as part of operator-level reporting, this is the source data.

5. Cost, lifecycle and the replacement decision

Total cost of ownership per asset, per class, per location is the answer Maximo gives to the question *should we replace this tractor or rebuild it*. Operating cost per kilometre, per hour or per cycle is rolled up automatically once labour, parts, downtime and fuel are captured against work.

Replacement and refurbishment decisions stop being driven by gut and start being driven by curves: cost-per-hour against age, against utilisation, against reliability. For a fleet with a meaningful capital budget and a procurement cycle that runs a year or two ahead, this is the analytic the asset management team is asked to defend in front of finance.

Depreciation, lease, registration and insurance are tracked alongside maintenance, so the financial picture and the operational picture sit on the same record rather than in parallel spreadsheets.

6. Compliance

GSE compliance at a major airport is an audit obligation, not a side activity. Driver licences and operator authorisations are linked to person records and to work assignment, so an expired GSE-driving authorisation cannot be allocated to drive a high-loader. Inspection and certification regimes (safety, lifting equipment, calibration, emissions, periodic roadworthiness) are scheduled and audited the same way maintenance is.

The result is that an airport-operator audit, a national road authority visit or an internal SHE review becomes one report rather than a hunt across spreadsheets.

7. Where Maximo sits in the wider operational stack

Maximo is the system of record for the **asset, maintenance, parts, cost and compliance** dimensions of the fleet. It is not a real-time tracking platform, a fuel-card system or a dispatch system. The pattern that works at airport scale is **telematics, fuel and dispatch integrated with Maximo**, with each system owning what it is best at.

Function	System that owns it	What Maximo does with it
Real-time GPS tracking, geofencing, fault telemetry	Telematics platform such as Geotab, Samsara, INFORM, Undagrid (GSE-specific) or TCR	Consumes meters, events and faults to drive PMs, condition-based maintenance and analytics
Fuel card, tank and dispenser management	Fuel system such as Fuelmaster or the OEM equivalent	Consumes transactions to drive meters, PMs and consumption analytics
GSE dispatch and stand allocation	Ramp / GSE dispatch such as INFORM GroundStar, or an in-house solution	Publishes serviceability so dispatch knows what is and is not available
Driver hours / tachograph (where relevant)	Dedicated HOS system	Out of scope; airside operations are not normally tachograph-regulated, but verify locally

Where these integrations are set up cleanly, the airport has one source of truth per question. Where they overlap or contradict, the airport has two answers and stops trusting both systems. Designing the boundary is part of the deployment.

8. Outcomes for the asset management team

The capabilities above translate into outcomes the team is measured on.

- **GSE serviceability as a defensible operational KPI** that ties to stand and turnaround SLAs, against the same asset register operations sees.

- **On-time PM completion across a mixed-energy fleet.** Hour- and distance-based PMs for diesel, cycle- and SoH-based PMs for EV, one operational view.
- **Audit readiness on demand.** Inspections, certifications, recalls, campaigns and driver authorisations on a single trail.
- **Defensible TCO and replacement decisions.** Curves rather than opinions, supporting the capital plan.
- **Sustainability reporting.** Diesel and petrol burn rolls into Scope 1, charging energy into Scope 2, per asset and per class, natively when Maximo is paired with **IBM Envizi**.
- **One platform with terminal, airfield and BHS.** Where Maximo is already used (or will be used) for jet bridges, the baggage handling system, HVAC, runway lighting and airfield assets, putting GSE on the same platform removes a parallel system, a parallel master data set, a parallel integration estate, and a parallel mobile app. At airport scale this is the single largest architectural argument.

9. Typical phasing

A Transportation deployment in MAS Manage usually runs in three phases.

1. **Foundation.** Asset register, classification, hierarchy, meters, baseline PM regime, mobile inspections. The output is a workshop running Maximo end-to-end on the existing PM cycle.
2. **Integration and analytics.** Telematics, fuel and dispatch boundaries built and stabilised. Cost, serviceability and consumption reporting becomes trustworthy. The output is one source of truth for the questions the asset management team is asked.
3. **Condition-based and predictive.** MAS Monitor and MAS Health overlay the foundation. Critical asset classes (pushback tractors, GPUs, electric belt loaders) move to condition-based or predictive regimes where the data supports it. The output is a measurable shift in unplanned-to-planned ratio on the highest-value assets.

Sequencing the three deliberately, rather than running them in parallel, is what tends to determine whether the deployment lands the value it was scoped for.

10. Where MaxIron fits

MaxIron deploys Maximo and MAS Manage Transportation on airport GSE estates end-to-end: the asset register, the maintenance regime, the workshop process, the telematics and fuel boundaries, and the move to condition-based maintenance once the foundation is stable. If you are evaluating Maximo for an airport fleet, the cheapest place to start is a 30-minute review. Bring the GSE classes you care about and the operational KPIs you are measured on, and we will walk through the deployment honestly.

Book a 30-minute review · See our IBM Maximo implementation service · Read the Maximo to MAS upgrade checklist