

PAL Procurement System

Jamaica Constabulary Force (JCF) — Procurement, Acquisition & Logistics

Complete Development Outline & System Structure

Requisition → Approval → Sourcing → Purchase Order → Delivery → Invoice → Payment → Close

Built to satisfy the official "PAL Workflow and Data Requirements (Phase 1 of 2)"

Prepared 10 July 2026 · Status: **Phase 1 Build Complete**

1. Purpose & Context

The PAL system is an end-to-end procurement ERP for the Jamaica Constabulary Force. It digitises the full lifecycle of a purchase — from a station raising a requisition, through area approval, PAL sourcing, procurement authorisation and purchase-order issue, to supplier delivery, invoicing, payment and archival — with signatures, audit logging, budget control and supplier-compliance gating throughout.

Governing document: "PAL (Procurement) Workflow and Data Requirements — Phase 1 of 2". Every requirement (● critical, ● important, ● nice-to-have) in the accompanying gap analysis is closed, apart from a small number of items explicitly deferred pending client input or a Phase-2 module (see §11).

2. Technology Stack

Layer	Technology
Framework	Laravel 12 (PHP 8.2)
Database	MySQL / MariaDB (pal_procurement)
UI	Velzon Bootstrap 5 admin template, Blade views
Rich inputs	Choices.js (searchable selects), signature-pad canvas (hand signatures)
Auth & access	Session auth, role + delegation-based gates, custom middleware
Background	Scheduled Artisan commands (overdue escalation, formation import)
Notifications	Laravel database-channel notifications + topbar bell

3. System Structure (at a glance)

Component	Count	What it holds
Eloquent Models	39	Domain entities (requisition, PO, invoice, supplier, budget, formation...)
Controllers	40	18 workflow/portal + 16 admin master-data controllers
Service classes	7	Business logic (approval matrix, budget, SLA, quote analysis...)
Support/Gate classes	3	Delivery, Invoice, Return-flow permission logic
Database tables	40	Full relational schema (55 migrations)
Blade views	271	Workflow screens, admin CRUD, reports, print documents
Seeders	10	Reference data + demo dataset
Console commands	2	Overdue escalation, formation CSV import

3.1 Domain Models (39)

Requisition, RequisitionItem, RequisitionApproval, WorkflowLog, Quote, QuoteItem, QuoteAnalysis, PurchaseOrder, PurchaseOrderItem, Delivery, DeliveryItem, DeliveryIssue, DeliveryLocation, Invoice, InvoiceItem, Payment, Supplier, SupplierRating, SupplierSurvey, SupplierFollowup, Item,

ItemCategory, UnitOfMeasure, Asset, Budget, CostCentre, ApprovalThreshold, Delegation, ProcurementMethod, ReasonCode, SlaTarget, Formation, Station, Area, PalOffice, OrgUnit, Attachment, ActivityLog, User.

3.2 Workflow & Portal Controllers (18)

Requisition, Quote, Procurement, PurchaseOrder, Delivery, Invoice, Payment, Survey, Followup, Supplier, SupplierPortal, Asset, Item, OrgUnit, Notification, Report, Dashboard, Home.

3.3 Admin Master-Data Controllers (16)

User, Station, Formation, PalOffice, Area (via office), CostCentre, Budget, ApprovalThreshold, Delegation, ProcurementMethod, ReasonCode, SlaSetting, DeliveryLocation, Item, AuditLog.

3.4 Service & Gate Layer

Services: ApprovalMatrixService, BudgetService, SlaService, QuoteAnalysisService, DuplicateDetector, RequisitionNotifier, FormationImporter. **Gates:** DeliveryGate, InvoiceGate, ReturnFlow.

4. Roles & Access

Role	Responsibility in the workflow
Station	Raises requisitions (what is needed + originating Formation Station).
Area	Reviews & approves/returns requisitions for their area; bound by approval limit.
PAL	Sources quotes, selects a quote, sets procurement method & cost centre, validates and submits to Procurement; dispatches PO; rates supplier; closes.
Procurement	Reviews the submission, confirms method/cost centre, runs budget & supplier-compliance checks, prepares/authorises and issues the Purchase Order.
Budget / Finance	Verifies invoices, processes and confirms payment.
Supplier	Portal role — receives PO, delivers, submits invoice.
Administrator	Manages all master data, users, formation tree, thresholds, audit trail.

Access is enforced by role plus a **delegation register** (an officer can act with another role's authority for a period) and per-officer **approval limits** (max value they may authorise).

5. End-to-End Workflow (6 stages / 25 steps)

The requisition's `status` field drives a 25-step state machine; every transition is written to an immutable `workflow_logs` audit trail (actor, role, from→to status, reason code, timestamp).

Stage	Key statuses	What happens
1 · Requisition & Approval	draft → submitted → area_review → (returned_to_station) → pal_received	Station raises the request; Area approves (with signature, approval-limit & restricted-item checks) or returns it with a reason code.
2 · PAL Sourcing	pal_processing → pal_query → submitted_to_procurement	PAL adds quotes, runs quote analysis, selects a winner, sets procurement method & cost centre , signs and forwards to Procurement.
3 · Procurement & PO	procurement_review → po_issued → po_sent	Procurement confirms method/cost centre, budget & supplier-compliance gates run, PO is prepared/authorised (threshold-based dual signature) and issued; PAL dispatches it.
4 · Delivery	awaiting_delivery → delivered → delivery_issue → delivery_confirmed	Supplier delivers; goods are inspected and accepted or an issue is raised; receipt is confirmed.
5 · Invoice & Payment	invoice_pending → invoice_received → invoice_verifying → invoice_verified → with_finance → payment_processing → payment_received/confirmed	Invoice is submitted, sighted, verified against PO/delivery, forwarded to Finance, paid and confirmed (budget is spent down).
6 · Review & Close	pending_review → closed (cancelled)	PAL rates the supplier on four criteria, then closes and archives the requisition.

A **universal return-for-correction** path lets the current handler send a requisition back to any earlier checkpoint with a mandatory reason at any stage.

6. Feature Modules Delivered

Phase A – Financial & Approval Controls

- **Approval Matrix** – admin-editable value bands map a requisition's value to the required approver tier (`ApprovalMatrixService`), shown as a progress chip-chain on each requisition.
- **Approval limits & delegation** – per-officer spend caps enforced at area approval and PO issue; a delegation register lets officers act with delegated authority.
- **Budget & Cost Centre control** – cost centres, annual budgets (Apr–Mar) with allocation / committed / spent / balance; *warn-but-allow* budget check at PO issue (over-budget requires a logged override reason); encumber → release → spend lifecycle via `BudgetService` .
- **Supplier compliance gating** – blacklisted/suspended/inactive suppliers are hard-blocked at PO issue; tax/insurance/compliance warnings are warn-but-allow with an override reason.
- **Overdue escalation** – `SlaService` + daily `requisitions:escalate` command flags and notifies overdue items.

Phase B – Data Depth & Audit

- **System-wide audit trail** – `Auditable` trait writes to `activity_logs` for Requisition, PO, Supplier, Cost Centre, Budget, Threshold, Formation, Delegation, User & Station; filterable viewer at Admin → Audit Trail (passwords/signatures excluded).
- **Reason codes** – standardised return/rejection reasons (R01–R10) captured on approvals and workflow logs.
- **Enriched master data** – items (spec, last price, preferred/alternative suppliers, stock/asset/restricted flags, warranty, MOQ) and stations (type, parish, officer-in-charge, contacts, delivery instructions) with full admin CRUD.

Phase C – Polish, Reporting & UX

- **Duplicate detection** – warns when a similar requisition was raised recently (warn-but-allow acknowledgement).
- **Restricted / controlled items** – require an explicit authorisation acknowledgement at area approval.
- **Notifications** – database notifications resolve the next actor(s) on every status change; topbar bell + notifications page.
- **Reporting & dashboards** – KPIs (cycle time, SLA on-time, satisfaction), spend by supplier/area, budget utilisation, rejections by reason, invoice aging, outstanding POs, pending/overdue deliveries; role-scoped work-queue dashboard.
- **Delivery locations** master data.

JCF Formation Tree

- Six-level self-referencing hierarchy: **Portfolio** → **Area/Branch** → **Division/Formation** → **Zone/Region/Location** → **Station** → **Unit**.
- Loaded from the official "JCF Formation Listing" – **1,339 nodes** (6 portfolios, 25 branches, 77 divisions, 149 zones, 356 stations, 726 units).
- Idempotent CSV importer (`FormationImporter` / `formations:import`) with web upload; recursive tree view.
- Users and requisitions are posted onto a real Formation **Station** node.

7. Recent Refinements (July 2026)

Change	Detail
Requisition form simplified	The requester now captures only <i>what</i> is needed and <i>where</i> it originates. Procurement Method, Cost Centre, End User and the legacy Station selector were removed from the create/edit form.
Method & Cost Centre moved downstream	Now chosen by PAL (Submit-to-Procurement) and confirmable by Procurement (Issue-PO), where they belong operationally; justification auto-required for sole-source/emergency methods.
Formation is the single origin	Formation (Station) is the required origin field; area→PAL routing continues to follow the requester's assigned station.
Supplier type → multi-select	A supplier can now carry multiple categories (Goods, Services, Works, Consultancy, Emergency); stored as a JSON array.
Searchable formation pickers	Every long formation list (requisition, users, cost centre, formation-parent) is a searchable Choices.js select.

8. Data Model – Core Tables (40)

Group	Tables
Requisition core	requisitions, requisition_items, requisition_approvals, workflow_logs
Sourcing	quotes, quote_items, quote_analyses, procurement_methods
Purchase Orders	purchase_orders, purchase_order_items
Delivery	deliveries, delivery_items, delivery_issues, delivery_locations
Invoice & Payment	invoices, invoice_items, payments
Suppliers	suppliers, supplier_ratings, supplier_surveys, supplier_followups
Catalogue & Assets	items, item_categories, units_of_measure, assets
Finance controls	budgets, cost_centres, approval_thresholds, delegations
Org structure	formations, stations, areas, pal_offices, org_units
Governance	reason_codes, sla_targets, attachments, activity_logs
Platform	users, notifications, jobs, migrations, tokens

9. Deployment & Environment

- Assets are pre-built in `public/build` (no Node/Vite build required on the host).
- Run locally with `php artisan serve` (<http://127.0.0.1:8000>).
- Reference & demo data seeded (10 seeders); formation tree seeded from the committed CSV.
- Scheduled task: `requisitions:escalate --notify` daily at 07:00.

10. Status Summary

Phase A COMPLETE

Phase B COMPLETE

Phase C COMPLETE

Formation tree fully loaded

All requirements in the Phase 1 gap analysis are closed. The system supports the complete requisition-to-payment lifecycle with signatures, audit, budget control, approval matrix, supplier compliance and reporting.

11. Roadmap – Outstanding & Deferred

Item	Status	Note
Document-management UI (metadata §13)	Deferred	Schema is in place (document_type, version, confidentiality, retention). Files currently live as path columns on quotes/POs/invoices; a dedicated document module UI is deferred until prioritised.
Emergency step-skipping path	Flagged only	Emergency requisitions are flagged; an accelerated path that formally skips steps is not yet implemented (needs client rules).
Personnel bulk import	Awaiting client	Formation import is done; a bulk import of <i>personnel</i> onto the tree awaits the client's staff CSV/Excel.
Approval routing follows Formation	Optional refactor	Routing still keys off the legacy station/area. Making the Formation tree the routing source (mapping nodes to approver offices) is an available, un-started refactor.
Requirements Phase 2 of 2	Awaiting doc	The governing document is "Phase 1 of 2". Phase-2 requirements have not yet been supplied.

In short: the Phase-1 build is functionally complete and deployable. The remaining items are either awaiting client input (personnel data, Phase-2 spec, emergency rules) or are optional enhancements (document-management UI, formation-based routing) — none block go-live.

