# AFS Mutual Aid – Functional & Technical Requirements

## Functional Requirements (Phase 1)

* Interface for Base Schedules & Constraints – UI to input schedules, constraints (vacation, deployments), and view them visually.
* Schedule Comparison Across Offices – Ability to compare schedules between multiple WFOs/RFCs.
* Draft Alternative Plans – Create scenario plans based on mutual aid requests and service types, including: transfer services to another office for a set period; add SME to support an office for an event.
* Compliance Checking & Adjustment Suggestions – Continuous validation of schedules against known constraints, with auto-proposed fixes.
* Approval Workflow – Ability for select users to review and approve draft schedules/plans.
* Incident Action Plan (IAP) Generation – Auto-generate IAPs in current template format; allow custom template design.
* Map Integration – Display schedules/IAPs on a map interface.
* NWS Connect Integration – Store data internally and publish to the NWS Connect map interface.
* Role-Based Dashboards – Different views for WFO Coordinators, Regional Coordinators, Admins.
* Notifications – Automated notifications for key events, approvals, and compliance issues.
* Reporting & Analytics – Summary metrics, backlog tracking, SLA adherence.

## Technical Requirements

* Hosting & Compliance – Must be hosted in AWS GovCloud; comply with all data residency requirements.
* Integration with NWS Connect – API-based connection to publish and retrieve data; possible connection to National Operational Readiness Dashboard.
* Security – SSO/RBAC, MFA, encryption at rest (AWS KMS CMKs) and in transit (TLS 1.2+).
* Audit Logging – Full logging of data changes, approvals, and system actions.
* Data Model – Relational schema for schedules, requests, offices, events; support version history.
* Scheduling & Constraint Engine – Rules-based engine (e.g., OR-Tools) for compliance checking and optimization.
* APIs – REST/GraphQL for data ingestion and system interoperability.
* Map Services – Integration with mapping tools for geospatial display and filtering.
* Performance Targets – Fast ingestion, <3s map load time, <5s schedule comparison for 10+ offices.
* High Availability/DR – Multi-AZ deployment; RTO/RPO targets.
* Accessibility – Section 508 compliance for UI.
* Environments & IaC – Dev/Test/Prod with Terraform or CloudFormation, CI/CD pipeline.
* Observability – Metrics, logs, and tracing with alerting.