Smart Disaster Resource Coordination Platform

Phase 9: Reporting, Dashboards & Security Review

Reports Implementation

Comprehensive Operational Reporting

Purpose: Provides real-time visibility and historical analysis supporting both operational decision-making and strategic planning for emergency response operations.

Shelter Capacity Overview Report

Report Type: Summary Report with Grouping **Business Use Case:** Operations managers require real-time shelter capacity information to make placement decisions and identify overflow risks.

Report Configuration:

- **Primary Object:** Shelters
- **Report Format:** Summary with visual charts
- **Grouping:** Operational Status (Available, At Capacity, Maintenance, Closed)
- **Sort Order:** Capacity Utilization (Descending)

Fields Included:

- Shelter Name (Primary identification)
- Location (Geographic reference)
- Total Capacity (Maximum occupancy)
- Current Occupancy (Real-time count)
- Available Capacity (Formula: Total - Current)
- Capacity Utilization (Percentage formula)
- Operational Status (Current facility status)
- Special Needs Support (Capability indicators)

Chart Configuration:

- **Chart Type:** Horizontal Bar Chart
- **Y-Axis:** Shelter Names
- **X-Axis:** Capacity Utilization Percentage
- **Color Coding:** Green (0-70%), Yellow (71-90%), Red (91-100%)

Business Value:

- **Real-Time Decision Making:** Instant capacity visibility for placement coordination
- **Risk Identification:** Early warning for shelters approaching capacity
- **Resource Planning:** Capacity trend analysis for resource allocation
- **Performance Metrics:** Utilization efficiency tracking

Active Resource Requests Report

Report Type: Tabular Report with Filtering **Business Use Case:** Resource managers need comprehensive visibility into pending requests to prioritize approvals and identify supply gaps.

Report Configuration:

- **Primary Object:** Requests with Shelters and Resources (Custom Report Type)
- **Format:** Tabular for detailed request analysis
- **Default Filters:** Request Status NOT EQUAL TO Fulfilled, Denied, Cancelled
- **Sort Order:** Priority Level (Urgent first), then Request Date

Key Fields:

- Request Number (Unique identifier)
- Requesting Shelter (Facility name and location)
- Requested Resource (Item name and category)
- Quantity Requested (Amount needed)
- Priority Level (Urgency indicator)
- Request Status (Current stage)
- Request Date (Submission timestamp)
- Needed By Date (Deadline)
- Justification (Business reason)

Filtering Options:

- **Priority Level:** Multi-select for priority-based views
- **Resource Type:** Category-based filtering
- **Date Range:** Time-based request analysis
- **Requesting Shelter:** Facility-specific views

Business Impact:

- **Priority Management:** Clear urgency-based request prioritization
- **Supply Chain Visibility:** Complete view of resource demand
- **Performance Tracking:** Request processing time analysis
- **Bottleneck Identification:** Process improvement opportunities

Volunteer Deployment Status Report

Report Type: Summary Report with Matrix View **Business Use Case:** Volunteer coordinators require comprehensive deployment status for assignment optimization and performance tracking.

Report Configuration:

- **Primary Object:** Volunteers
- **Format:** Summary with cross-tab analysis
- **Primary Grouping:** Availability Status
- **Secondary Grouping:** Skills (Multi-select picklist)
- **Chart Type:** Donut Chart showing deployment distribution

Analysis Fields:

- Volunteer Name (Full name combination)
- Skills (Multi-select capability indicators)
- Experience Level (Proficiency rating)
- Availability Status (Current deployment state)
- Current Assignment (Active placement)
- Hours Completed (Performance metric)
- Performance Rating (Quality indicator)

Matrix Configuration:

- **Rows:** Availability Status categories
- **Columns:** Skill categories
- **Values:** Count of volunteers, Average hours, Average rating

Operational Benefits:

- **Resource Optimization:** Skill-based deployment planning
- **Performance Management:** Volunteer effectiveness tracking
- **Capacity Planning:** Available resource identification
- **Recognition Programs:** High-performer identification

Report Types Implementation

Custom Report Type: Shelter Operations Analysis

Purpose: Provides comprehensive shelter operational reporting combining shelter data with requests, volunteers, and capacity metrics.

Primary Object: Shelter__c **Related Objects:**

- Requests__r (Master-detail relationship)

- Volunteers__r (Lookup relationship)
- Activities (Standard relationship)

Report Type Benefits:

- **Operational Visibility:** Complete shelter operational picture
- **Performance Analysis:** Multi-dimensional shelter effectiveness
- **Resource Correlation:** Shelter needs and resource allocation
- **Historical Trending:** Long-term operational pattern analysis

Field Categories:

1. **Facility Information:** Basic shelter identification and characteristics
2. **Capacity Metrics:** Occupancy, utilization, and availability data
3. **Resource Requests:** Request volume, priority, and fulfillment status
4. **Staff Assignment:** Volunteer deployment and performance
5. **Operational History:** Timeline of shelter activities and changes

Dashboards Implementation

Emergency Response Command Center Dashboard

Purpose: Executive-level real-time visibility into complete emergency response operations supporting strategic decision-making and resource allocation.

Dashboard Configuration:

- **Name:** Emergency Response Command Center
- **Audience:** Crisis Managers, Regional Managers, Senior Leadership
- **Refresh Frequency:** Every 15 minutes during active operations
- **Mobile Optimization:** Responsive design for tablet and mobile access

Component Layout:

1. **System Status Overview (Top Row)**
   - **Active Disasters:** Count and severity distribution
   - **Total Shelters:** Operational status breakdown
   - **Volunteer Deployment:** Availability and assignment status
   - **Resource Alerts:** Critical shortage notifications
2. **Operational Metrics (Second Row)**
   - **Shelter Capacity Chart:** Horizontal bar chart from Shelter Capacity Report
   - **Request Status Funnel:** Pipeline view of resource requests
   - **Response Time KPIs:** Average processing times for critical functions
3. **Geographic View (Third Row)**
   - **Disaster Impact Map:** Geographic visualization of active disasters

- ○ **Resource Distribution:** Supply chain and logistics overview
- ○ **Communication Status:** Inter-agency coordination health
4. **Performance Analytics (Bottom Row)**
    - ○ **Historical Trends:** Month-over-month operational comparisons
    - ○ **Efficiency Metrics:** Resource utilization and deployment effectiveness
    - ○ **Predictive Indicators:** Early warning systems and trend analysis

Component Configuration Details:

Shelter Capacity Component:

- ● **Source Report:** Shelter Capacity Overview
- ● **Display Type:** Horizontal Bar Chart
- ● **Sort Order:** Capacity Utilization (Highest first)
- ● **Color Coding:** Conditional formatting based on utilization thresholds
- ● **Drill-Down:** Click to navigate to individual shelter details

Resource Request Pipeline:

- ● **Source Report:** Active Resource Requests
- ● **Display Type:** Funnel Chart
- ● **Stages:** Submitted → Under Review → Approved → In Transit → Fulfilled
- ● **Metrics:** Count and total value by stage
- ● **Filters:** Priority level and date range selectors

Dynamic Dashboards Implementation

Role-Based Dashboard Personalization

Purpose: Provides personalized dashboard experiences based on user role and responsibilities while maintaining consistency in critical information display.

Dynamic Dashboard Features:

1. **Crisis Manager View:**
    - ○ **Scope:** System-wide visibility across all operations
    - ○ **Components:** Strategic metrics, resource allocation, inter-agency coordination
    - ○ **Permissions:** All data access with administrative capabilities
    - ○ **Customization:** Layout modification and component addition rights
2. **Shelter Manager View:**
    - ○ **Scope:** Facility-specific data with regional context
    - ○ **Components:** Shelter operations, resource requests, volunteer assignments
    - ○ **Permissions:** Shelter-specific data with limited regional visibility
    - ○ **Customization:** Component filtering and arrangement options

3. **Field Volunteer View:**
   - **Scope:** Assignment-specific information with communication tools
   - **Components:** Task lists, communication feeds, safety information
   - **Permissions:** Assignment-related data only
   - **Customization:** Personal preferences and notification settings

Implementation Benefits:

- **Relevance:** Users see information relevant to their responsibilities
- **Performance:** Reduced data loading through targeted queries
- **Security:** Role-appropriate data access enforcement
- **Usability:** Simplified interface focusing on user needs

Security Review Implementation

Comprehensive Security Architecture Analysis

Purpose: Ensures robust security protecting sensitive emergency response data while enabling effective coordination and communication during crisis operations.

Profiles Security Analysis

Security Model Review:

1. **Crisis Manager Profile:**
   - **Access Level:** Administrative with full system visibility
   - **Risk Assessment:** High privilege level requires enhanced monitoring
   - **Security Controls:** MFA required, session timeout, IP restrictions
   - **Audit Requirements:** Complete activity logging and review
2. **Volunteer Coordinator Profile:**
   - **Access Level:** Volunteer and shelter management
   - **Risk Assessment:** Moderate privilege with volunteer data access
   - **Security Controls:** Standard authentication, role-based restrictions
   - **Data Protection:** Volunteer PII access monitoring
3. **Shelter Manager Profile:**
   - **Access Level:** Facility-specific with resource request capability
   - **Risk Assessment:** Limited scope with resource allocation access
   - **Security Controls:** Mobile device security, location-based access
   - **Operational Security:** Field operation security protocols
4. **Field Volunteer Profile:**
   - **Access Level:** Assignment-specific information only
   - **Risk Assessment:** Low privilege with mobile access requirements

- ○ **Security Controls:** Device registration, time-limited access
- ○ **Mobile Security:** Encrypted mobile communication, remote wipe capability

Permission Sets Security Review

Enhanced Security Controls:

1. **Emergency Response Access Permission Set:**
   - ○ **Purpose:** Temporary privilege elevation during crisis situations
   - ○ **Activation Criteria:** Crisis declaration triggers automatic assignment
   - ○ **Duration Controls:** Time-limited access with automatic expiration
   - ○ **Monitoring:** Enhanced audit trail during elevated access periods
2. **Mobile Field Access Permission Set:**
   - ○ **Purpose:** Mobile-specific permissions for field operations
   - ○ **Device Controls:** Registered device requirement and management
   - ○ **Location Services:** GPS-based access validation
   - ○ **Communication Security:** Encrypted mobile data transmission

Field Level Security Implementation

Sensitive Data Protection:

1. **Volunteer Personal Information:**
   - ○ **Protected Fields:** Emergency contacts, personal addresses, phone numbers
   - ○ **Access Control:** Role-based visibility with business need justification
   - ○ **Audit Trail:** Complete access logging for compliance
2. **Resource Cost Information:**
   - ○ **Protected Fields:** Unit costs, supplier information, budget allocations
   - ○ **Access Control:** Financial role requirements for visibility
   - ○ **Reporting Restrictions:** Aggregated reporting only for non-financial users
3. **Shelter Security Information:**
   - ○ **Protected Fields:** Security protocols, access codes, safety procedures
   - ○ **Access Control:** Security clearance requirements
   - ○ **Classification:** Government security level compliance

Session Settings Security

Session Management Configuration:

- ● **Timeout Settings:** 2-hour timeout for standard users, 30-minute for high privilege
- ● **Login Hours:** 24/7 for emergency response personnel with monitoring
- ● **IP Restrictions:** Network-based access control for sensitive operations
- ● **Device Management:** Mobile device registration and monitoring requirements

Login IP Ranges Configuration

Network Security Controls:

1. **Headquarters Network:**
   - **IP Range:** Primary facility network with full access
   - **Security Level:** Trusted network with standard authentication
   - **Monitoring:** Standard audit logging and review
2. **Field Operations Networks:**
   - **IP Range:** Mobile carrier networks with additional verification
   - **Security Level:** Enhanced authentication with location validation
   - **Monitoring:** Real-time access monitoring and alerting
3. **Partner Organization Access:**
   - **IP Range:** Specific partner network ranges with limited access
   - **Security Level:** External access with strict permission controls
   - **Monitoring:** Enhanced logging with partner activity review

Audit Trail Implementation

Comprehensive Activity Monitoring:

Audit Trail Configuration:

- **Field History Tracking:** Enabled on all custom objects for critical fields
- **Login History:** Complete login activity with device and location tracking
- **API Access:** Complete API usage logging with request and response capture
- **Setup Changes:** All configuration changes with before/after snapshots

Compliance Reporting:

- **Daily Security Reports:** Automated security activity summaries
- **Exception Alerts:** Real-time notifications for security violations
- **Access Reviews:** Quarterly access right reviews and validation
- **Incident Response:** Security incident documentation and response procedures

Monitoring Benefits:

- **Compliance:** Government audit requirement satisfaction
- **Security:** Early detection of unauthorized access attempts
- **Performance:** User activity pattern analysis for optimization
- **Accountability:** Complete activity trail for post-incident analysis