



COPPER

(Critical Operations Preparedness and Procedures for Emergency Response)

DATASHEET

including Functional Overview

TECHNICAL SPECIFICATIONS

Introduction

COPPER provides a full-service, extensible Command Operations Center environment including information, communication and logistical systems for companies and agencies engaged in different types and levels of activity pertaining to potential or imminent or post-factum emergencies, disasters, and other critical events affecting communities, environments, socio-economic infrastructures and the lives of people in areas affected by such events.



There is a substantive information-technology component to COPPER which involves web-based portals, databases, real-time communications, imaging, tracking, news, alerts, modeling and forecasting. This provides a comprehensive working environment for all members of a team engaged in the work of dealing with the critical events and processes. For each individual situation and projects (e.g., planning, preparation, prevention, response, clean-up, and reconstruction) COPPER is tailored and customized, through use of templates, modules, and content management, to fit the specific needs of the project. Once the system architecture and its protocols are finalized for a project, COPPER is ready for operation and this typically entails linking and loading the system with digital content involving personnel, equipment, resources, supplies, and mission-specific tasks.

COPPER coordinates, facilitates and manages the different work processes that involve people, equipment and supplies. The actual protocols for each aspect of any given project will be defined by the participating entities (e.g., in the USA, governmental agencies such as FEMA (DHS), CDC, EPA, OSHA, DOD and appropriate emergency management, health, public safety and other departments at state, county and municipality levels, plus private-sector contractors and subcontractors). These protocols are the basis for creating and editing or removing content from COPPER databases and websites. However, a foundational version of COPPER can be employed virtually "as is" with no modifications other than to add in the necessary content data for personnel, equipment, maps, charts, schedules, and other material specific to the situation/project.

Information Technology Resource Features and Requirements

- Management, storage, editing, and delivery of information resources to the project community
 - Maps, diagrams, and charts in multiple formats and modes (real-time GIS, top, street, satellite, others)
 - Images (photos and videos) including assessment/evaluation of locations & regions (e.g., damage or threat)
 - Reports, presentation, articles, memos (including selected external and public source material)
- Control and distribution of information on incidents, accidents, risks, threats, complaints and real-time issues
- Estimates, forecasts, predictions, projections about conditions (natural or man-made), work demands, public health risks and conditions, CBRNE situations, traffic and evacuations, supplies and deliveries, and more
- Access and interfaces to project databases for transactional and DBMA purposes
- Tracking, locating, redirection and time/fuel optimization of vehicles, equipment and personnel
- Ticketing and logging of supply and hauling loads including debris-pickup management
- Load measurement for trucks and other vehicles hauling supplies or debris
- Conduct of special operations for data collection and assessment using UAV, ALV and other robotic technologies
- Access and management for specialized environmental, health, medical, safety, security applications and systems
- Specialized internal and external models, simulations, forecasts and other computer-based tools
- Resource and supply-chain management, inventory control and user/customer response and support
 - Supplies and equipment for project operations
 - Water, food, fuel, medicine, shelter and other immediate/near-term needs for affected populations
 - EcOasis Pods (mobile life-support and energy modules) for use throughout affected regions
- Operational Continuity and Fault-Tolerant Asymmetric Threat Resilience
- Individualized, customized online workspaces (including teleconferencing) for project teams to use internally
- Real-time project alerts/needs/requests management and distribution
- Comprehensive project personnel contact and communication management including voice, SMS and email

In brief, if it is a task that needs to be performed or managed or reviewed, COPPER provides a way to do that.

System Operating Environments**Server Requirements**

COPPER is designed to operate on a variety of server hosts. The system can be configured to operate on a shared server, a dedicated server or server farm, or in a cloud-based computing environment. The standard environment, which can be rapidly changed to meet project requirements, requires Linux, PHP, Apache, and MySQL. Detailed tech-specs are available from the COPPER Master Operating Manual (MOM).

End-User Requirements

COPPER will operate on any PC, laptop, PDA or smartphone that is internet-enabled and equipped with a standard-industry browser. Disk-less network devices are supported, but optimally the end-user will have minimally a Windows XP laptop, an iPad, or an iPhone or Android class of handheld device.

COPPER has been designed to produce a “minimal IT footprint” in terms of computing, internet, and wireless communication demands. If something can be seen and edited in a standard browser window, then it can be incorporated as data or as an application into COER for a given project.

FUNCTIONS OVERVIEW

The following are examples of functions that are among the large and open-ended repertoire that COPPER can employ and deliver, using its collaborative and synergy-driven population of techniques and tools:

- RFID and GIS management of equipment, vehicles, supplies, personnel & situation data (e.g., assessments, hazards, risks, threats)
- Micro-helicopter (remote-operation, radio-controlled, wi-fi connected with the internet) or manned aerial surveillance and estimation of potential damage, debris concentrations and volumes, flooding, fire-threats, evacuation-route statuses, and more
- Bicycle-based performance of the same types of tasks (using both mountain-bikes and new wind-assisted “wikes”)
- Automated and AI (artificial intelligence) assisted tracking and locating and estimating of future position and timing for people, vehicles, special equipment, supplies, including civilian population evacuation, emergency sheltering, and return
- Automated load calculation and verification of hauling-truck loads (debris and refuse, or material and supplies)
- Accurate and rapid field-tested deployments of sensors, detectors, monitors, and analytical instrumentation for identification and tracking of IDLH (immediate danger to life and health) chemicals, biological agents, and radioactive substances
- Effective suite of rapid-deployment shelters for emergency habitation, offices, storage of supplies including large machines and vehicles including oversize trucks and earth-moving equipment
- Seamless fault-tolerant messaging including fall-back and alternate team notifications, using SMS, voice, and video, for staff that need to be notified, redirected, placed out of danger, sent to new assignments
- AI-assisted real-time integration with public health, epidemiology, nutrition, CBRNE, public safety and security systems (internal and external to COPPER) for proactive, preventive, responsive, and counter-pandemic/panic action

Contact TETRADYN for additional information, for access to the operational hands-on environment and to discuss customization, implementation, data-collection/entry, training and support.