

Winter Wrath

Exercise Only



Situation Manual (SitMan)

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National Alliance for Public Safety GIS (NAPSG) Foundation

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1 Introduction

This National Geospatial Preparedness Summit (NGPS) preparedness exercise is a hybrid, discussion-based and functional exercise designed to advance skills of GIS staff and use of location-enabled decision support capabilities by decision makers and operators. It will promote shared understanding and enhanced operational coordination. Key elements of that coordination involve data, analytics, products, and technology requirements, all of which support decision making.

This scenario-driven exercise is structured to explore four key questions outlined below. Associated objectives are described in the following subsections.

- What are the **core information needs for decision makers** throughout readiness and into response and recovery?
- Based on these core information needs – how should **spatial data be managed, shared, analyzed, and visualized** to support effective decision making? *This includes decision making by the affected public as well.*
- How can **crowdsourced information** be integrated with GIS to improve situational awareness and aid decision making during an event?
- How do the different solutions for **managing and sharing resource information** across jurisdictions improve or hinder operational coordination in a mutual aid event?

1.1 Core Information Needs

When an incident occurs, first responders and decision makers must make life and death decisions under considerable time constraints. The ability of first responders and senior leaders to make informed and efficient decisions relies on access to actionable information across agencies and jurisdictions.

Emergency managers and first responders need to identify some pre-established questions that they will need answers in advance of an actual disaster. These are the questions and answers that provide actionable information through each phase of emergency management. Once these questions have been identified, the iterative process of information collection and solution design can be initiated.

1.2 Geospatial Preparedness

Geospatial information is critical to addressing core information needs because disaster response is an inherently spatial problem across preparedness, readiness, response, and recovery. Once core information needs are identified, geospatial data must be collected, and information products must be designed to efficiently address core information needs.

NAPSG Foundation has worked across a broad group of stakeholders to develop and provide a suite of relevant national guidance:

- [First Responder Core Information Guideline](#)
- [Mutual Aid Information Requirements](#)

- [Guidance on Resource Management Dashboards](#)
- [National Flood Preparedness Guideline](#)

While much of the core information needs identified in this process remain constant over time and disaster type, the geospatial technology used to support core information needs advances very rapidly. Therefore, the NGPS event and this exercise are designed to provide an opportunity to evaluate existing and emerging geospatial tools and information sharing practices in a collaborative environment.

1.3 Mutual Aid

Disaster response efforts in 2017 and 2018 affirmed just how crucial it is to support local first responder agencies nationwide in the clear skies preparedness phase. Public safety officials and first responders need access to innovative and standardized technology solutions and practices for daily operations involving multi-jurisdictional response that can automatically scale to support large-scale disasters, involving more complex resource management and mutual aid across state and tribal boundaries.

The 2017 and 2018 disasters also affirmed the need for hands-on capacity building forums that increase skills and practical experience in applying innovative technology for resource management and mutual aid in the field. The Winter Wrath Exercise is an opportunity to test approaches for best managing and sharing resource information to maximize operational readiness for events requiring mutual aid.

This Situation Manual below provides objectives and desired outcomes, a high-level scenario overview, and proposed facilitator questions for discussions during the exercise.

2 Exercise Goals

We have three primary goals for the Winter Wrath Exercise:

1. Validate and refine all-hazards core information needs, for consistent use by agencies across the nation.
2. Advance the skills of GIS staff and use of location-enabled decision support capabilities by decision makers and operators – to promote shared understanding and enhanced operational coordination.
3. Identify a replicable method for integrating crowdsourced information into GIS that increases decision maker confidence in the information, while improving situational awareness.
4. Determine the most effective approach for managing and sharing resource information in support of seamless regional mutual aid.

The interpretation of these goals may vary based on the audience (decision-maker, first responder, or GIS specialist) and the organization as described below.

2.1 National Organizations and Agencies

- Verify core information requirements needed for effective decision making across all-hazards and levels of government.
- Identify and validate common features and capabilities of location-enabled decision support capabilities needed to drive action and support decision making.
- Identify and validate emerging smart practices regarding common operational coordination decision points, information requirements, and GIS capabilities that should be incorporated into national guidelines, standards, tools, and templates.

2.2 Local, State, Territorial, and Tribal Agencies

- Validate and strengthen understanding of operational decision points, core information requirements, and GIS capabilities required to support decision making in a winter weather event.
- Understand core information needs for the public and the technology required for public information maps.
- Understand how to incorporate crowdsourced information into GIS applications for improving situational awareness.
- Understand the benefits of (and techniques for) managing and sharing resource information in real-time through live dynamic feeds.
- GIS staff have a better understanding of how to develop and deliver the right information products to decision makers at the right time to inform operational coordination in a winter weather event.
- Operators and decision makers have a better understanding of GIS staff capabilities, products, and analysis that support decision making in a winter weather event.
- Bridge terminology or communication gaps between decision makers, operators, and GIS staff to better anticipate and fulfill information requirements.

3 Exercise Format

Discussion-based and functional exercise activities provide a forum to achieve exercise objectives. This exercise will begin with a field exercise on Day 1 to test field data collection platforms, geospatial decision support tools, and demonstrate the use of standardized core information needs in this process.

On Day 2 a functional exercise is conducted to promote mutual understanding across and between decision makers, first responders, and GIS Staff. Functional exercise play provides a hands-on opportunity for decision makers, first responders and GIS staff to apply skills and knowledge needed to employ GIS capabilities in a simulated response to a major winter weather event.

3.1 Breakout Groups

NGPS participants will be grouped into six (6) facilitated breakout groups. Each group will consist of approximately 40 participants and reflect blended and balanced participation by

decision makers, first responders, and GIS staff. Participants will be preassigned and directed to their assigned groups.

3.2 Scenario

All breakout groups will use a single scenario and receive injects at the same time via email. The exercise scenario focuses on the potential for a complex incident effecting a broad regional area resulting in an incident of national significance.

3.3 Simulation

Each breakout group represents a different agency/jurisdictional perspective effected by the scenario. The Controller should guide players into exercise play based on the agency/jurisdiction they are simulating.

3.4 Controllers

NAPSG Foundation Controllers will be assigned to each breakout group. Controllers will possess a combination of operational experience and technical knowledge.

3.5 Technical Support

Each group will be assigned 1-2 NAPSG Foundation Technical Support experts. They will be available to provide technical assistance to GIS staff and players during the exercise.

3.6 Technical Preparation

All NGPS participants will be set-up in applicable technology platforms, including the NAPSG GeoPlatform (NAPSG's instance of ArcGIS Online), prior to the day of the exercise. NAPSG Foundation will use either grant access to participants with their existing AGOL accounts or establish temporary accounts for those who do not have them. While GIS staff will have an opportunity to build-upon and enhance the tools they configured during their NGPS hands-on training, exercise players will be provided with pre-configured geospatial tools to answer questions related to injects.

3.7 Observation and Evaluation

This exercise is a 4-hour facilitated exercise with hot wash. Facilitator questions and injects allow participants to discuss roles, responsibilities, and key decision point, while developing and applying location-enabled decision support capabilities. Discussions are structured around identified core capabilities, critical coordination points, requirements, and potential challenges or shortfalls. Each breakout group will have individuals assigned as exercise evaluators/observers.

4 Participants

Exercise participants include public safety decision makers, operators, and GIS staff from local, state, and federal agencies nationwide.

4.1 Scope and Assumptions

Exercises play a vital role in preparedness by enabling emergency management practitioners, geospatial technologists, and other partners to build, sustain, and validate capabilities as well as identify potential capability shortfalls and areas for improvement. A well-designed exercise provides a low-risk environment to share understanding of roles, requirements, challenges, and critical coordination points that foster collaborative problem solving and communication across organizations.

Facilitators ensure participants have an opportunity to contribute. While questions may be directed to specific players at times, all participants are encouraged to share their perspectives. It may be necessary to move discussions forward or move to other questions to maximize opportunity for a diverse set of participants to engage in the exercise. Time constraints and flow of discussion may not allow all proposed questions to be addressed.

Participants should consider the following exercise ground rules to ensure exercise objectives are met in a reasonable amount of time and that the exercise runs smoothly:

We are not simulating how operations are carried out in Colorado.

- Exercise scenario and simulated jurisdictions provide context
- Pre-defined org structures and pre-assigned roles are fictitious
- Resource inventory information is fictitious

Keep exercise objectives in-mind throughout the exercise.

Participate openly and focus discussions on appropriate topics related to exercise objectives. Asking questions; sharing thoughts; and offering forward-looking, problem-solving suggestions are strongly encouraged, as these will enhance everyone's exercise experience.

Focus your comments and consider time constraints.

- In any exercise, assumptions may be necessary to complete discussions in the time allotted. During this exercise, the following assumptions apply: The scenario and likely effects to the communities and surrounding area(s) are plausible, and events occur as they are presented
- There is no hidden agenda or trick questions. Players receive information at the same time.

4.2 Observations and Evaluation

Exercise observation and evaluation strategies for this facilitated discussion are consistent with Homeland Security Exercise and Evaluation Program (HSEEP) Guidance and appropriate for use with exercises intended to provide learning opportunities rather than test individuals or plans.

Employing Geospatial Capabilities:

- 1) Were triggers indicating what geospatial capabilities are needed to support disaster operations for this incident validated or identified?
 - a) If yes, what triggers were validated?
 - b) What new triggers, if any, were identified?
 - c) If no, why not?

- 2) Given the scenario, simulated jurisdictions, and available GIS capabilities, what support, analysis or products did operators indicate they would use or request?
- 3) What information did participants indicate needing to know prior to making or fulfilling a request?

Geospatial Preparedness Evaluation and Observation Criteria:

- 1) Did GIS staff produce an enhanced and predictive consequence assessment that effectively supported operator decision making? (i.e., Did the products inform and change or affirm decisions using sound location-enabled analysis?)
- 2) Did GIS staff successfully incorporate core information needs that successfully aided in operational decision making?
 - a) If yes, what critical information points were incorporated and why did they prove effective?
 - b) If no, why not? What challenges were experienced?
- 3) Were GIS staff able to overcome challenges in existing mutual aid systems with the geospatial tools available?
 - a) If yes, how was this accomplished?
 - b) If no, why not? What enhancements are needed to improve these systems?

4.3 Core Capabilities

Three core capabilities¹ will be explored during this exercise: Operational Coordination, Planning, and Situational Assessment.

Core Capability	Description	
Operational Coordination	Establish a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports all disaster operations.	
	Response	Recovery
	<ul style="list-style-type: none"> Mobilize all critical resources and establish command, control, and coordination structures within the affected community and other coordinating bodies in surrounding communities and across the Nation and maintain as needed throughout the duration of an incident Enhance and maintain command, control, and coordination structures, consistent with the National Incident Management System (NIMS), to meet basic human needs, stabilize the incident, and transition to recovery 	<ul style="list-style-type: none"> Establish tiered, integrated leadership, and inclusive coordinating organizations that operate with a unity of effort and are supported by sufficient assessment and analysis to provide defined structure and decision-making processes for recovery activities. Define the path and timeline for recovery leadership to achieve the jurisdiction's objectives that effectively coordinates and uses appropriate local, state, tribal, territorial, insular area, and federal assistance, as well as nongovernmental and private sector resources. This plan is to be implemented with the established timeline.
Planning	Conduct a systematic planning process engaging all installation components and tenant units as well as relevant mission partners as appropriate in developing strategic and operational approaches to meet defined objectives.	
	Response	Recovery
	<ul style="list-style-type: none"> Develop operational plans that adequately identify critical objectives based on planning requirements, provide a complete and integrated picture of the sequence and scope of the tasks to achieve objectives, and can be implemented within time frames contemplated in the plan using available resources 	<ul style="list-style-type: none"> Convene the core of an inclusive planning team (identified pre-disaster), which will oversee disaster recovery planning. Complete an initial recovery plan that provides an overall strategy and timeline, addresses all core capabilities, and integrates socioeconomic, demographic, accessibility, technology, and risk assessment considerations (including projected climate change impacts), which will be implemented in accordance with the timeline contained in the plan
Situational Assessment	Provide all decision makers and Senior Leaders with decision-relevant information regarding the nature and extent of the incident, any cascading effects, and the status of operations.	
	<p>Deliver information sufficient to inform decision making regarding immediate lifesaving and life-sustaining activities and engage governmental, private, and civic sector resources within and outside affected areas to meet basic human needs and stabilize the incident.</p> <p>Deliver enhanced information to reinforce ongoing lifesaving and life-sustaining activities, and engage governmental, private, and civic sector resources within and outside of the affected area to meet basic human needs, stabilize the incident, and support recovery.</p>	

¹ These are based on the National Preparedness Goal core capabilities ([September 2015](#)).

5 Scenario Narrative

5.1 SITUATION

The scenario begins on December 4th 2018, with a snowfall forecast with projections based on the historic 2003 March snowfall event.

A major winter storm is quickly moving through the Rocky Mountains and is expected to significantly impact the Front Range, beginning Tuesday, December 4th at 1200 hrs.

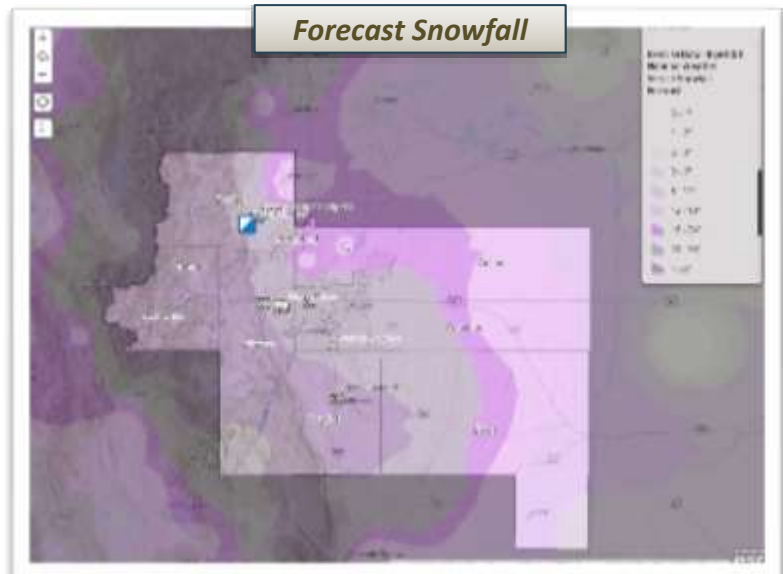
Total snowfall predictions for Fort Collins, Boulder, Denver, and the western edge of Colorado Springs is greater than 24 inches with freezing temperatures and winds of 15 to 30 mph.

The snow is expected to be wet and heavy with large drifts likely. Schools throughout the area have closed as well as most nonessential city, state, and federal office buildings. Travel throughout the area is ill advised as road conditions are expected to deteriorate over the next 24 hrs. Stranded motorists on the highways is a major concern.

Impacts to Lifelines may include the following:

- Energy: Large scale power outages.
- Transportation: Major road closures on Interstates. Denver Airport (DEN) may close.
- Safety & Security: Police and Fire infrastructure may experience delays in response due to impacts to roads and built infrastructure.

Based on the heavy wet snow forecast there is also a strong possibility of structural collapse in residential and commercial buildings. The Front Range Urban Corridor had an estimated population of 4,833,260 on July 1, 2016, an increase of +11.53% since the 2010 United States Census. The overall damage of this event may exceed the 2003 Storm of \$93 million due to increases in population across the Front Range.



5.2 Exercise Roles/Responsibilities:

Controllers: Facilitates discussions and supporting release of injects, ensuring discussions stay on target to achieve workshop objectives.

Players: Participate by engaging in collaborative, forward thinking discussions and hands-on solution development – including examining and where possible validating capability and capacity needed to change outcomes, maintain mission assurance, and identify potential challenges or opportunities for improvement.

Below is a list of simulated agencies that players and exercise control will be assigned to. It is important to recognize we will not be using these agencies existing systems and employees. The simulated agencies merely provide operational and incident context.

Table 1: Simulated Participating Agencies for Players.

Simulated Agency	Simulated Location	NGPS Room Location
Type II Incident Management Team	Incident Command Post (<i>Field Exercise Only</i>)	Glenn Miller Ballroom – East (<i>Day 1 – Dec. 3</i>)
Boulder City and County*	Regional EOC	Glenn Miller Ballroom - West
Douglas County*	Regional EOC	Multipurpose Room 235
Jefferson County*	Regional EOC	Glenn Miller Ballroom - Center
City and County of Denver*	Regional EOC	Glenn Miller Ballroom - East
State of Colorado*	State EOC	Rooms 384 & 386
FEMA Region 8*	FEMA R8 RRCC	Room 247

* See Appendix 1 with the basic organizational charts for the simulated agencies.

Table 2: Simulation Cell for Controllers.

Simulated Agency	Simulated Location	NGPS Room Location
Pueblo County	Regional EOC	SimCell - Room 382
Morgan County	Regional EOC	SimCell - Room 382
Weld County	Regional EOC	SimCell - Room 382
Colorado Department of Transportation	CO-DOT EOC	SimCell - Room 382
GISCorps	Remote Support	SimCell - Room 382

5.3 Injects

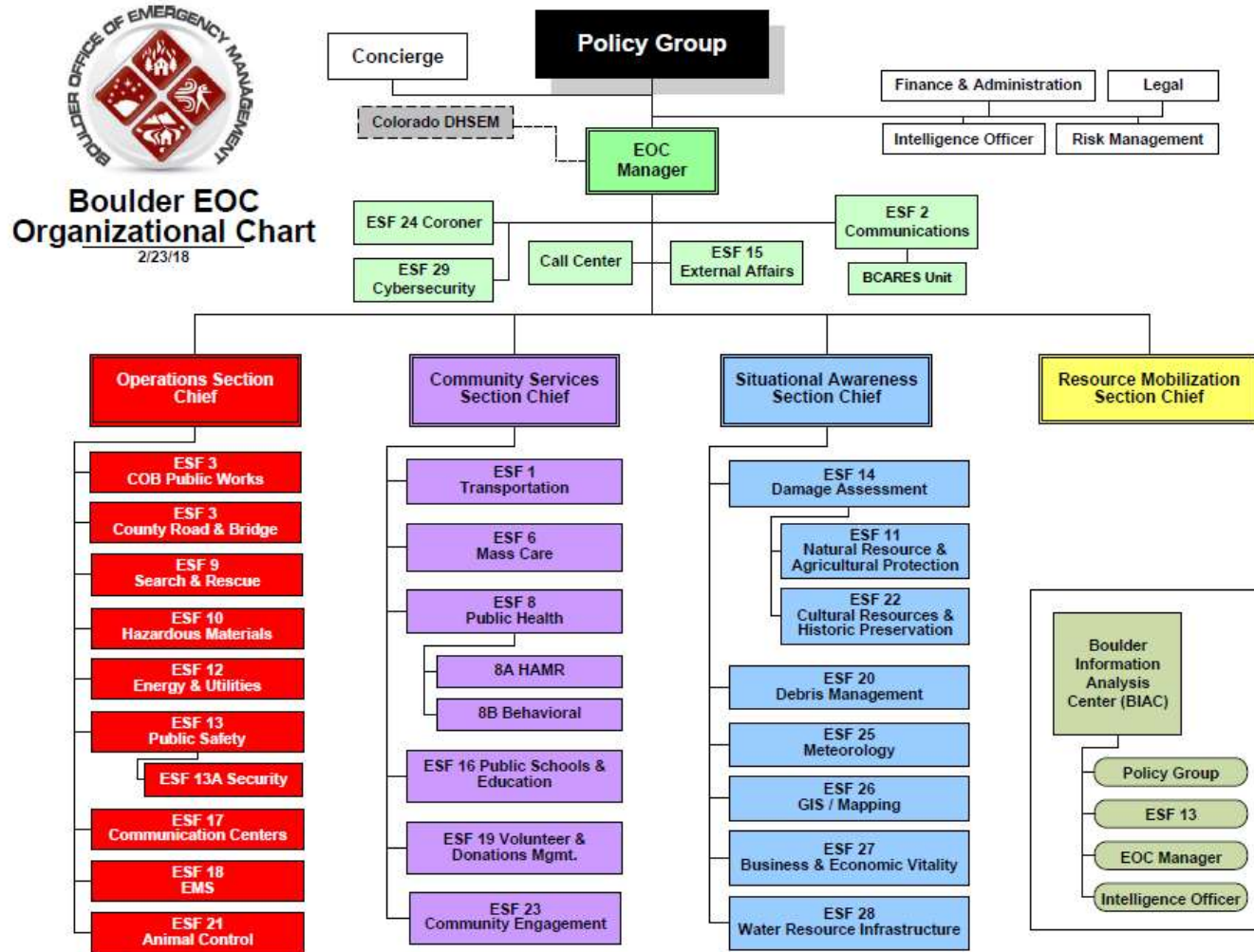
Injects are releases of information from the Exercise Controllers to the Exercise Players. These include simulated statements, documents, layers, and maps. These will be managed via the PrepToolkit platform and received by Players as messages with text, links, and/or attachments.

5.4 Discussion Questions

Exercise participants will engage in discussions, functional exercise play (decision making or GIS activities), and out-brief presentations focused around exercise-specific objectives. Facilitated discussions will be centered on discussions regarding desired outcomes, priorities, courses of action to meet the needs of those affected, resources, and potential challenges with employing geospatial capabilities to support operations. In each room there will be three primary groups of stakeholders with specific questions addressed to them: Decision-makers, First Responders, and GIS staff.

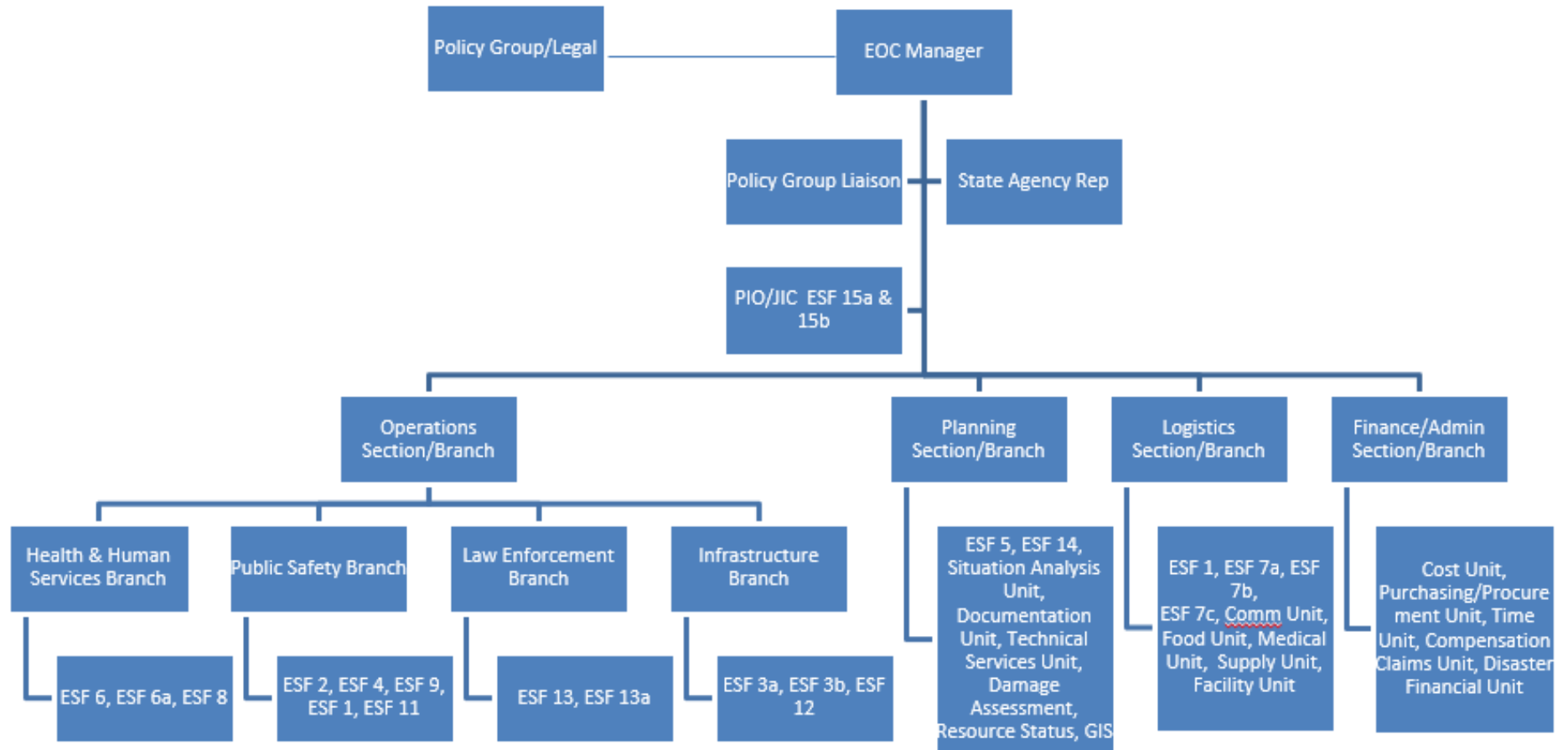
6 Appendix 1

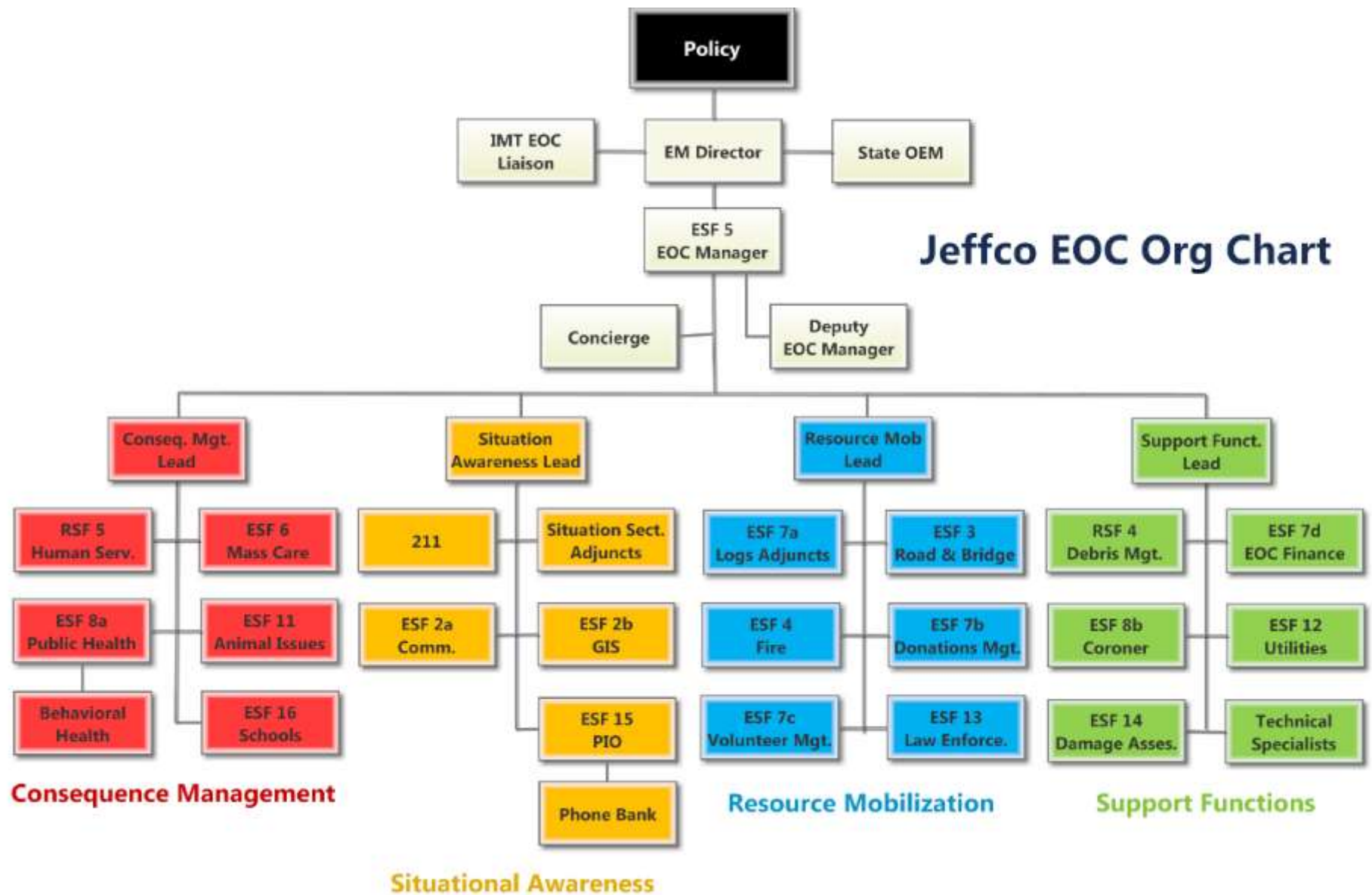
Simulated Agency Organizational Charts



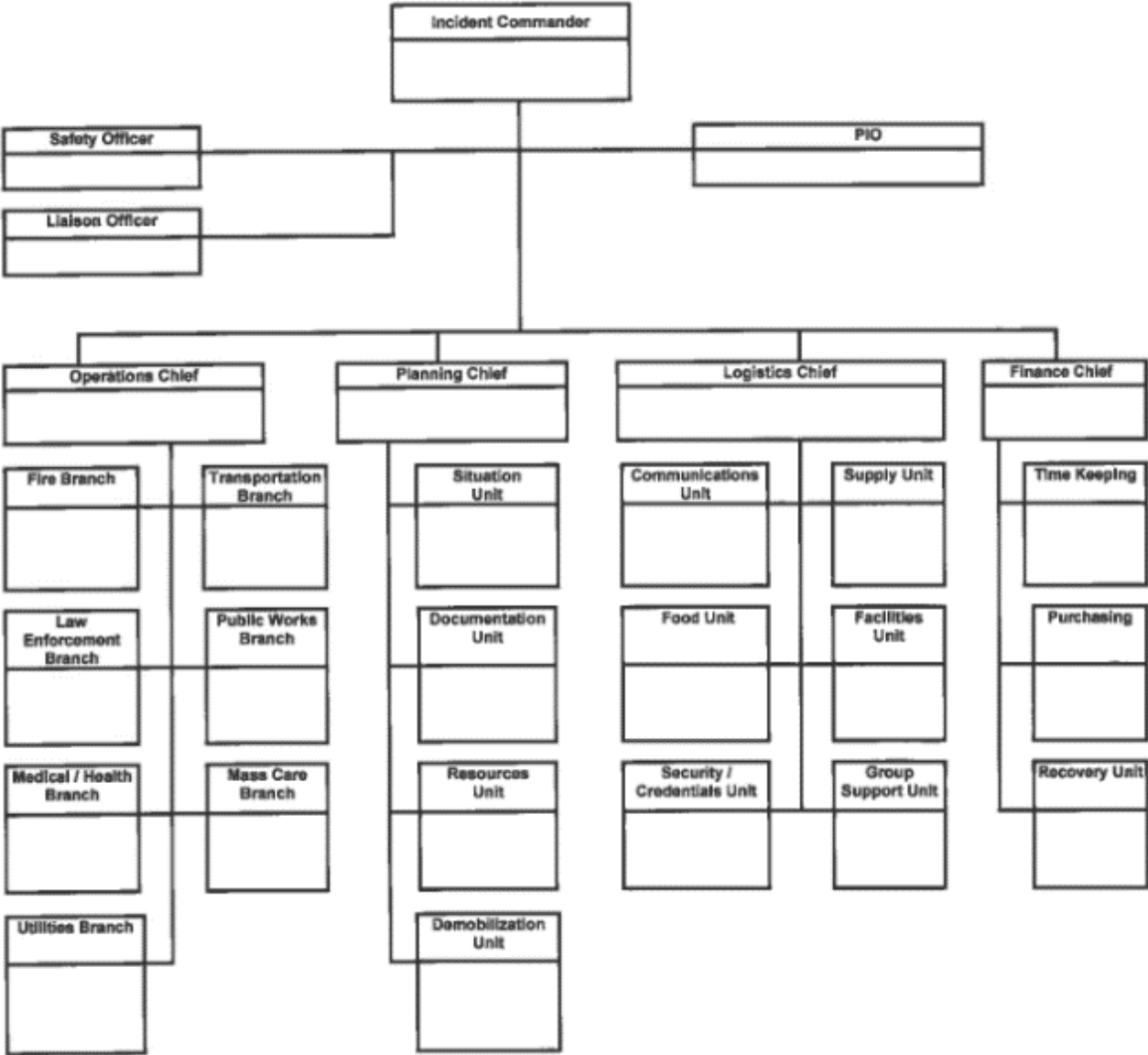
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Douglas EOC Management Structure

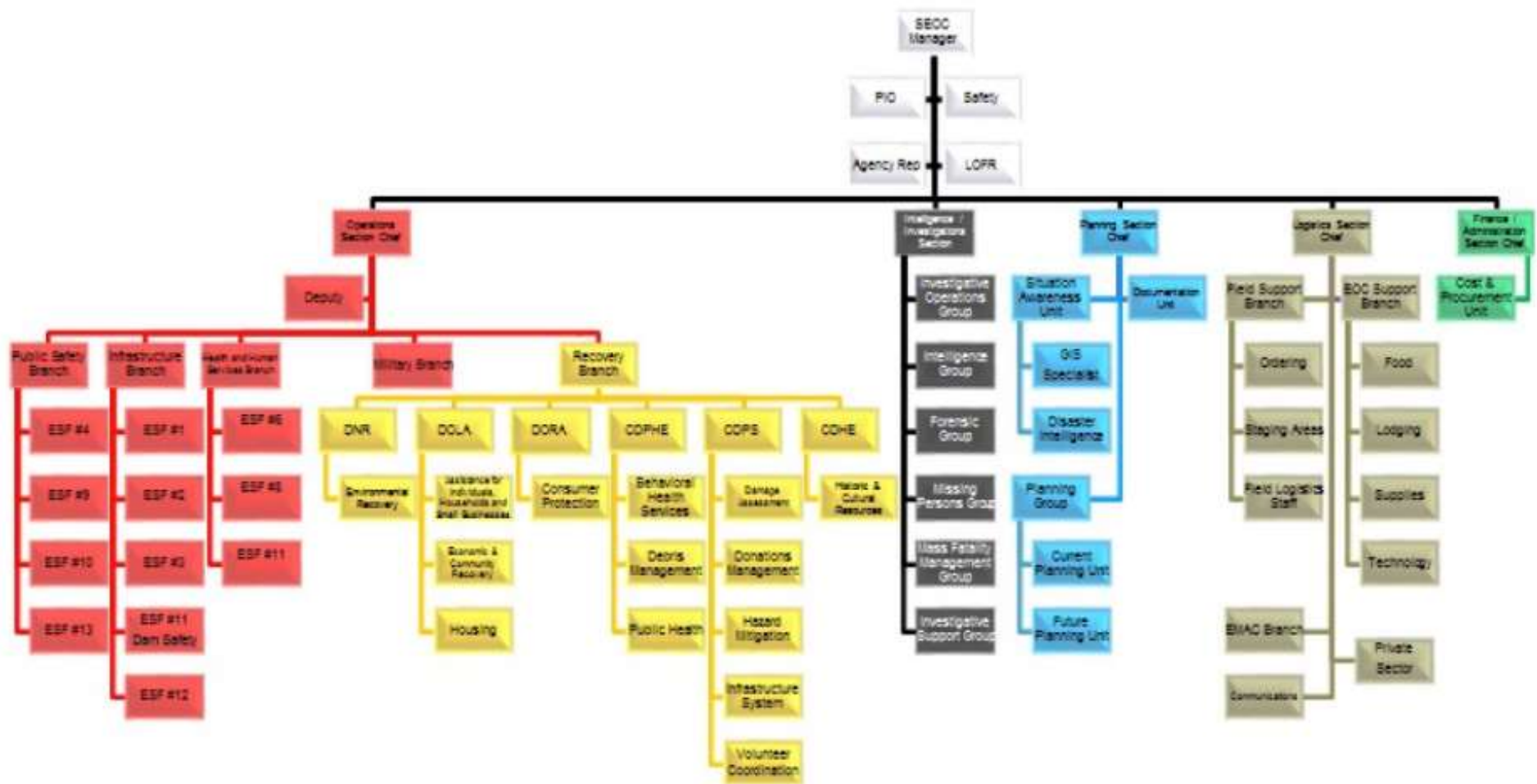




City and County of Denver EOC



State of Colorado EOC



FEMA Region 8 Regional Response Coordination Center

