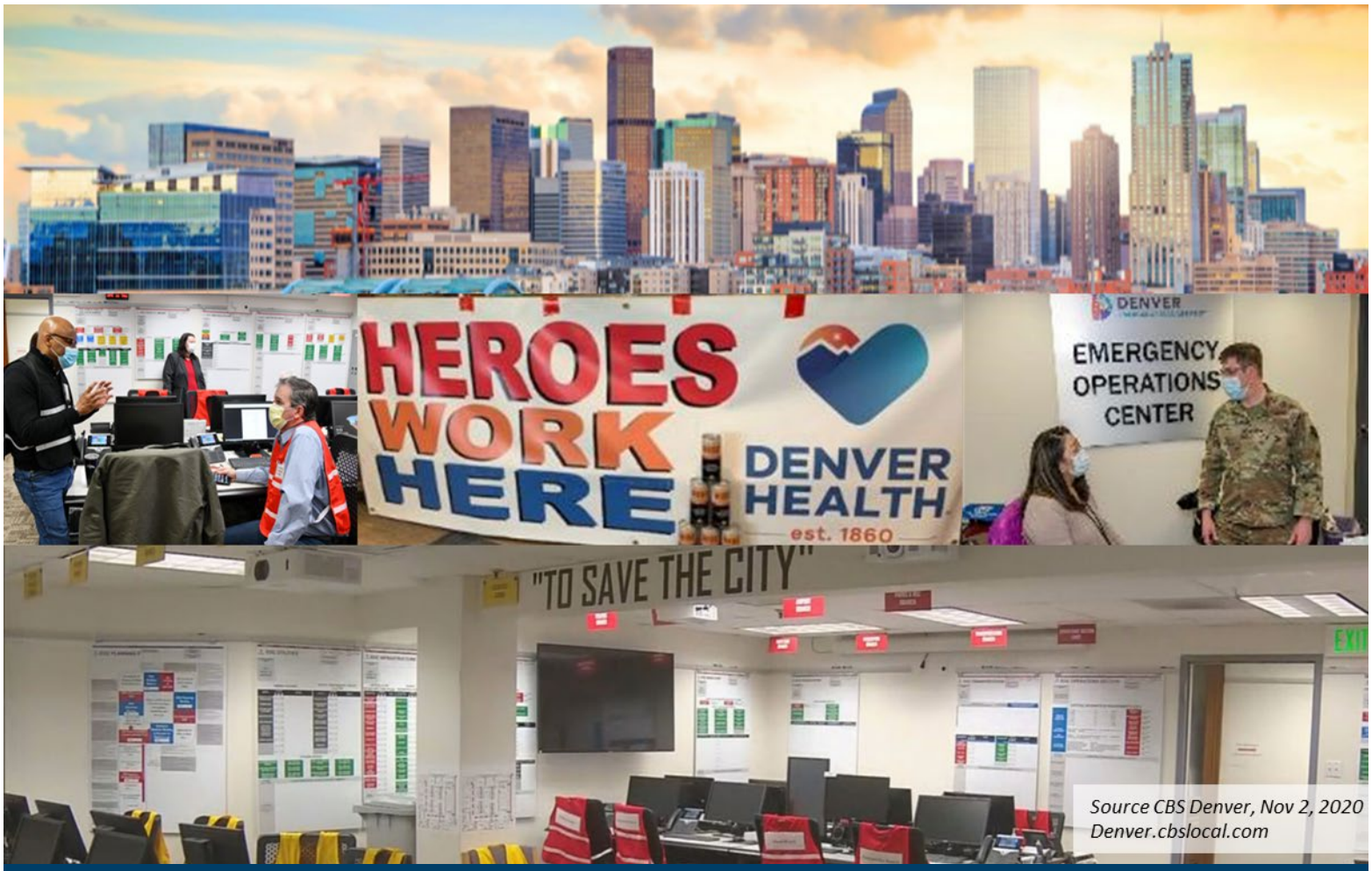

Source CBS Denver, Nov 2, 2020
Denver.cbslocal.com

Denver COVID-19 Initial Response: After-Action Report

February 2021

FEMA

DENVER
THE MILE HIGH CITY

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Executive Summary

Coronavirus Disease 2019 (COVID-19) is a contagious human-to-human respiratory and vascular disease that exploded across the globe infecting millions and at the time of this report, has killed well over 1.5 million people worldwide. The disease originated in Wuhan, China, with the first known cases of human infection recorded around December 8, 2019.

On January 21, 2020, a man in his 30s from Washington State who had recently returned from a trip to Wuhan became the first U.S. citizen diagnosed with COVID-19. Several days later, on January 30, a public health emergency was issued by the World Health Organization (WHO).

In early March 2020, officials of the City and County of Denver (Denver) heightened their observation of the global spread of the COVID-19 virus and tracking of its movement in the United States. By March 17, every state in the United States, including Colorado, had recorded its first case of COVID-19.[1] Denver leaders from public health, city government and emergency management paid close attention to trends and challenges in major cities, including Seattle, Washington, and New York City, New York.

Ultimately, on March 2, the Denver Department of Public Health and Environment Department Operations Center (PHE DOC) was established. Soon after, on March 12, the Denver Emergency Operations Center (EOC) was fully activated and the Mayor declared a state of emergency. On March 13, Colorado reported its first COVID-related death and the Mayor of Denver ordered city venues to close their doors and cancel events until April 12. Also, on March 13, President Donald Trump declared the coronavirus pandemic a national emergency.

The EOC activation lasted approximately 3.5 months, until it was demobilized on June 18, 2020, and the Long-Term Recovery Committee (LTRC) was implemented to continue with oversight and execution of Denver's recovery strategy.

The scope of this after-action report (AAR) is from March 3, 2020, to June 18, 2020, encompassing the initial citywide response to COVID-19. The observations and recommendations in this AAR will inform future preparedness and response investments and planning, policy and procedure development for Denver. These findings will also help other jurisdictions enhance preparedness and response capabilities for addressing both pandemic activations and long-term operations.

[1] Source: www.usa.com,

Key Takeaways

- **Planning**: Prior to the COVID-19 pandemic, previous training and real-world activations were for short operational timeframes. The most common length of any previous activation was a week or less. The COVID-19 response presented new challenges and revealed the need for additional planning for extended emergency responses. As the activation endured for months, the EOC, the PHE DOC and support personnel struggled to balance their emergency roles along with their day-to-day responsibilities.

- **Information Technology**: Denver Technology Services (TS) and the EOC Information Section made the most of technology, were deliberate in their approach, applied training when necessary and supported the EOC and other departments' transitions to virtual operations. The Denver TS and EOC Information Section reviewed a 65-page user manual to become more familiar with Microsoft (MS) Teams integration and collaboration software. Denver TS then went on to train over 300 Denver EOC personnel on MS Teams, which took a considerable amount of time to complete. This deliberate and targeted training approach helped to facilitate the EOC's movement to a virtual operation.

- **Public Information and Warning**: The Joint Information Center (JIC) strove to confirm that communications were correct and coordinated throughout the entire city. Doing this required that information requests be properly vetted and processed through the appropriate communication channels. The JIC successfully used a strategist position in the EOC as a bridge between the JIC manager and EOC leadership.

- **Emergency Operations Center**: Managers trusted EOC Section Chiefs to determine the best operational shifts during the prolonged activation. Additionally, the EOC leadership had to work with an antiquated EOC layout that was not conducive for a prolonged activation. Working with Technology Services, the Section Chiefs mitigated information gaps by using SharePoint folders and conducting EOC Section Chief daily operations briefings to allow staff and sections to maintain situational awareness of the COVID-19 response.

- **Mass Care and Housing**: The COVID-19 emergency response overwhelmed the Denver sheltering system for persons experiencing homelessness (PEH), rendering more than 56% of the pre-COVID-19 bed space unusable. During previous activations, the primary purpose of mass care and housing was to support individuals who had been displaced or left homeless because of an emergency. Due to COVID-19, this focus shifted to further support PEH to safeguard the health and safety of people accessing the shelters and to limit the community spread of COVID-19. Additionally, finding facilities to house PEH brought the challenge of having enough personnel to staff and operate shelters for the long term.

- **Virtual Operations and Communications**: As the activation moved from short term to long term, the EOC developed systems and processes to continue coordination and manage daily virtual operations. The EOC staff also made excellent use of established processes, such as "rainbow"

meetings encompassing various staff to facilitate rapid decision-making; provided daily action plans at the end of each shift; and encouraged sections to pass key information to oncoming shift personnel.

- **Logistics and Supply Chain Management**: A depleted strategic national stockpile caused the EOC Logistics Section to procure resources and supplies from overseas vendors, an action never done before. The EOC Logistics Section successfully transitioned from the EOC Form 213RR (Resource Request) paper form to the digital form. The 213RR was the starting point for any resource request. Completed requests were transferred to a spreadsheet to track progress on those resources requested. The transition from tracking resources and supply requests with physical whiteboards to virtual dashboards streamlined the procurement process and reduced resource order duplication.

- **Continuity**: As with planning (see above), continuity programs struggled with the prolonged nature of COVID-19. During the interviews, one respondent remarked that the agency Continuity of Operations Plans (COOPs) fell short in terms of thinking about the duration of the emergency and how everyone responded to it. The Denver EOC had been activated for about 3.5 months until demobilization and the transition over to the LTRC (March to mid-June).

- **Community Recovery and Economic Resilience**: The COVID-19 activation combined continued response strategies and recovery. Denver leadership developed and implemented the LTRC to oversee and plan Denver's recovery strategy once the city's emergency operations response to COVID-19 was demobilized. The EOC and LTRC prioritized equity and equality in both response and recovery operations to apply standards of fairness to health coverage, proper messaging and providing services and resources such as testing to underrepresented or underserved communities throughout the city.

- **Public Health Emergency**: The Denver Department of Public Health and Environment (DDPHE) and Denver Public Health (DPH) (a department of the Denver Health and Hospital Authority) were joint members of the PHE DOC and successfully developed a process tool to conduct COVID-19 contact tracing. The process checked that:

  - Suspected cases were tested;
  - Positive test results were entered into the state's system;
  - Test result data was downloaded by DPH and cases were contacted by DPH telephone case investigators; and
  - Contacts identified during case investigation were forwarded to DDPHE for contact tracing.

  In addition, community site testing was conducted at the Pepsi Center, with approximately 2000 tests conducted per day. The decision was to make more tests available through a community-based approach. Testing was combined with the DPH mobile testing capabilities, with DDPHE oversight, to provide more testing access to underserved populations. In conjunction with testing, other services were provided to the community, including mental health and food allocation assistance, to name just a few.

Denver Emergency Preparedness Efforts Overview

History

The Denver Mayor's Office of Emergency Management (OEM) was established by the Denver Revised Municipal Code (Title II Chapter 16) and the Mayor's Executive Order 85 in alignment with the municipal and county responsibilities under the Colorado Disaster Emergency Act (CRS 24-32-21). Denver OEM is led by an Executive Director appointed by the Mayor. As stated in Executive Order 85, Denver OEM is responsible for emergency management programs in Denver.

Denver OEM provides emergency management services to the residents, employees, and businesses in coordination with state and regional partners, to reduce the impact of all natural, technological, terrorism and intentional risks. OEM provides services across all phases of the emergency management lifecycle; from prevention, protection, and mitigation activities before an emergency to response and recovery operations during and after a large, complex emergency or declared disaster.

Denver's Emergency Operations Center (EOC) is the centralized location within the Multi-Agency Coordination System (MACS) where the government leadership and their partners coordinate response and recovery operations during an emergency or declared disaster. The Denver EOC's goal is to save the city through operational coordination across all field activities, which may consist of one or more incident sites, Denver departments and partner agencies.

Denver's Joint Information Center (JIC) is co-located with the Denver EOC as the centralized location within the Joint Information System (JIS), where government public information officers (PIOs) and their partners coordinate the release of emergency public information and warnings to the media, the public and partner agencies. The JIC provides input to, implements and reports progress on the strategic objectives established by the Denver EOC Action Plan.

The Denver EOC is supported by multiple Department Operations Centers (DOCs), such as those managed by the airport, environmental health and other functional areas to coordinate response and recovery operations during an emergency or declared disaster. Supporting DOCs may establish their own action plans to support the strategic objectives in the Denver EOC Action Plan. Each DOC provides input to, implements and reports progress on the strategic objectives established by the EOC action plan.

The Denver EOC and/or JIC, as well as supporting DOCs, may be activated prior to, during, or after an emergency or declared disaster at the direction of the Mayor's office or agency leadership or the request of any Denver department or agency. The staffing level and participation in the EOC is flexible, scalable, and modular, with only those EOC positions necessary for successful emergency management activated and staffed during the emergency or declared disaster.

The Denver EOC is supported by partner EOCs, such as those managed by hospitals, utilities, universities, schools, businesses, and the State of Colorado to support response and recovery operations during an emergency or declared disaster. Each partner EOC uses its own action plan and coordinates with the objectives in Denver's EOC Action Plan.

The Denver EOC coordinates response and recovery operations with multiple field activities, which may consist of traditional public safety incident commanders (ICs), hospitals, schools, utility providers, critical infrastructure sites, environmental on-scene coordinators (OSCs), mass care shelters and mass feeding sites, points of distribution for emergency supplies, points of dispensing for emergency pharmaceuticals, damage assessment teams, debris management teams, disaster assistance teams, businesses and neighborhoods. The intent is to coordinate, synchronize and synergize all of this field activity across multiple departments, agencies and organizations toward the strategic objectives established by the EOC Action Plan to unify Denver's whole community efforts to successfully recover from all emergencies and declared disasters.

Pre-Incident planning

Prior to 2020, the Denver Emergency Operations Plan (EOP) had not been substantially updated since 2007. This EOP did not reflect current and applicable operational capabilities of the city due to changes in government agencies and roles and responsibilities. A complete rewrite of the EOP was eventually finalized and signed in February 2020, after nearly two years of reviews, drafts, multiple agency involvement and approximately eight stakeholder meetings. The COVID-19 activation occurred one month after the adoption of the EOP. By the time of pandemic response activation, some portions of the new EOP had been socialized and trained. However, Denver did not specifically have a separate pandemic annex in the Denver EOP. The Denver Department of Public Health and Environment Department Operations Center or PHE DOC (which incorporated DPH from the Denver Health and Hospital Authority), had a pandemic plan drafted in June 2019, serving as the main reference for pandemic response. The PHE's pandemic annex will be formally incorporated into the Denver EOP in the near future.

Planning

The Denver Emergency Operations Plan (EOP) coordinates the development, maintenance and use of Denver prevention, protection, response, and recovery operations across 32 capability areas and over 50 partner agencies and organizations in the community. The Denver EOP establishes the operational requirements for the Denver EOC, JIC and supporting DOCs.

The Denver EOC uses the EOC action planning process to develop a Denver EOC action plan during each standard EOC operational period. The EOC action plan establishes and monitors progress on strategic objectives for citywide emergency operations. Each EOC action plan is developed for the next EOC operational period, while the EOC implements the existing EOC action plan using a process called management by objectives. The Denver EOC uses over 20 EOC-specific forms aligned to

traditional ICS form organization and numbering but designed specifically for the strategic operations of the Denver EOC, JIC and supporting DOCs.

Organization

The Denver EOC is led by the EOC Director, who is the Mayor or designee of Denver. In the Denver EOC are eight EOC sections: Management, Operations, Plans, Logistics, Finance & Administration, Information, Liaison and the JIC. Each of these sections are led by a Section Chief. The Denver EOC has 73 positions and the Denver JIC has 17 positions, each with three shifts – first, second and alternate. Together, these positions support the development, implementation and monitoring of progress on strategic objectives in the EOC action plan during the standard 12-hour EOC operational period. The Denver EOC does not use emergency support functions (ESF). Instead, the EOC uses the ICS-like structure as defined by CPG-101. Also, no policy or MAC group is in place, since the Mayor is the director or delegates this responsibility while maintaining close coordination with the EOC.

The Denver EOC uses an organizational maturity model consisting of basic and advanced skill levels linked to each EOC position title. The EOC team consists of two skill levels: basic for EOC branch directors and EOC group supervisors, and advanced for EOC directors and Section Chiefs. The EOC team training and exercise plan meets the following objectives:

- At the basic skill level, the EOC team member gains and maintains proficiency in fundamental EOC functions, such as activation, accountability, activity tracking, information sharing, initial resource management, coordination and demobilization skills. At this level, the EOC team member has the ability to develop and implement an EOC action plan for managing moderate emergencies across one EOC operational period (12 hours) and support implementation of an EOC action plan.

- At the advanced skill level, the EOC team member gains and maintains proficiency in advanced EOC functions, such as managing multi-agency operations with state and federal partners, multiple EOC sections and sustained EOC operations. At this level, the EOC team member has the ability to manage EOC action plans and field activity for large, complex emergencies and declared disasters across multiple EOC operational periods.

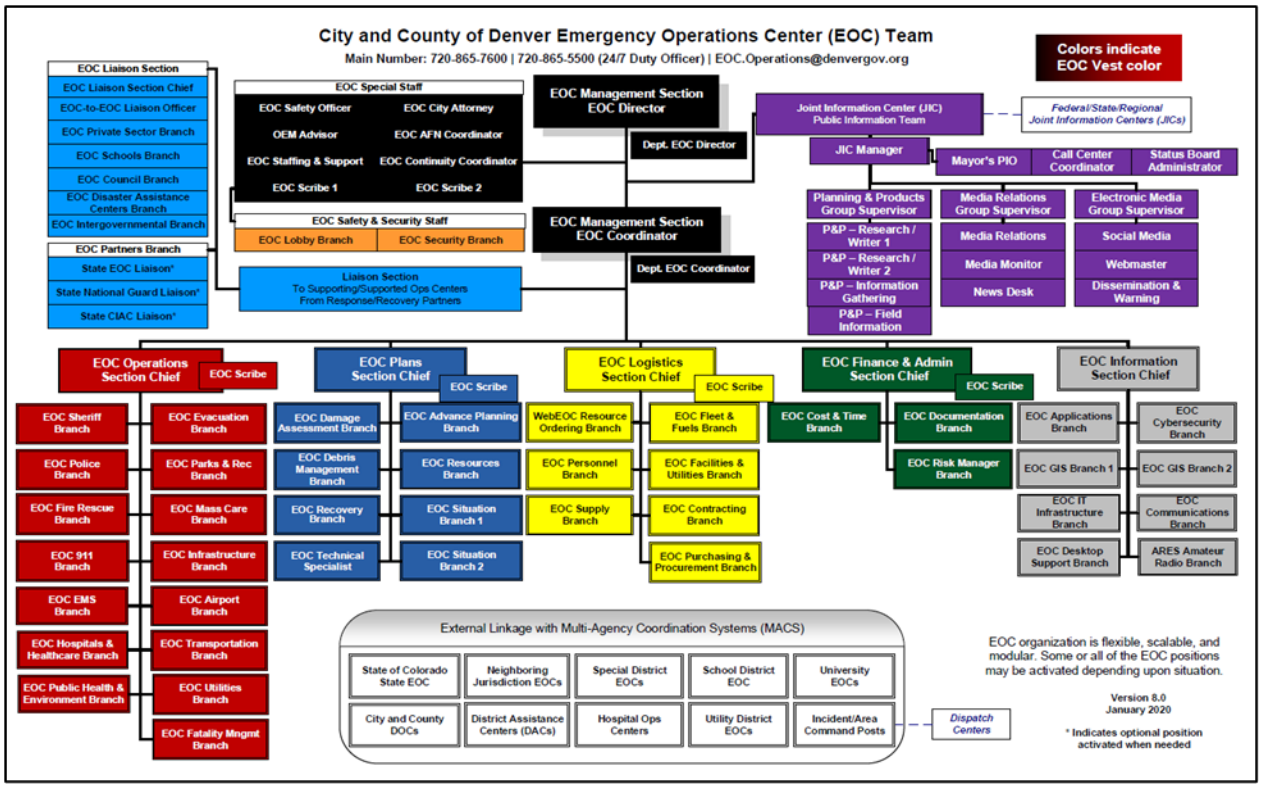


Figure 1: Denver EOC Organizational Chart (Also see Appendix B and Appendix B1: City and County of Denver EOC Team)

Equipment

Denver's primary EOC is in the basement of the City and County Building in downtown Denver, adjacent to Civic Center Park. Various television displays around the EOC can display any computer monitor in the EOC, as well as local and national broadcast stations.

The sections have public safety radio base stations, plain old telephone system (POTS) lines, emergency lanterns, an Amateur Radio Emergency Services (ARES) base station and a generator. The EOC also has enough food for five days, enough water for two days and about 50 cots and blankets for EOC staff, should they need to stay overnight.

The EOC has both analog and digital processes for EOC forms and EOC status boards. The EOC forms are adapted from the ICS forms released in 2015. The EOC status boards are laminated dry erase boards tailored by EOC section or branch position to display the strategic objectives, tasks, operational status and resource needs of that position in a common operational picture for all EOC staff.

The GIS branch developed a situational awareness (SA) tool that displays important information from around the city. The branch can modify and develop new dashboards on the fly to adapt to any

emergency. The city also has access to the state's WebEOC platform to request resources and share information with state and local partners.

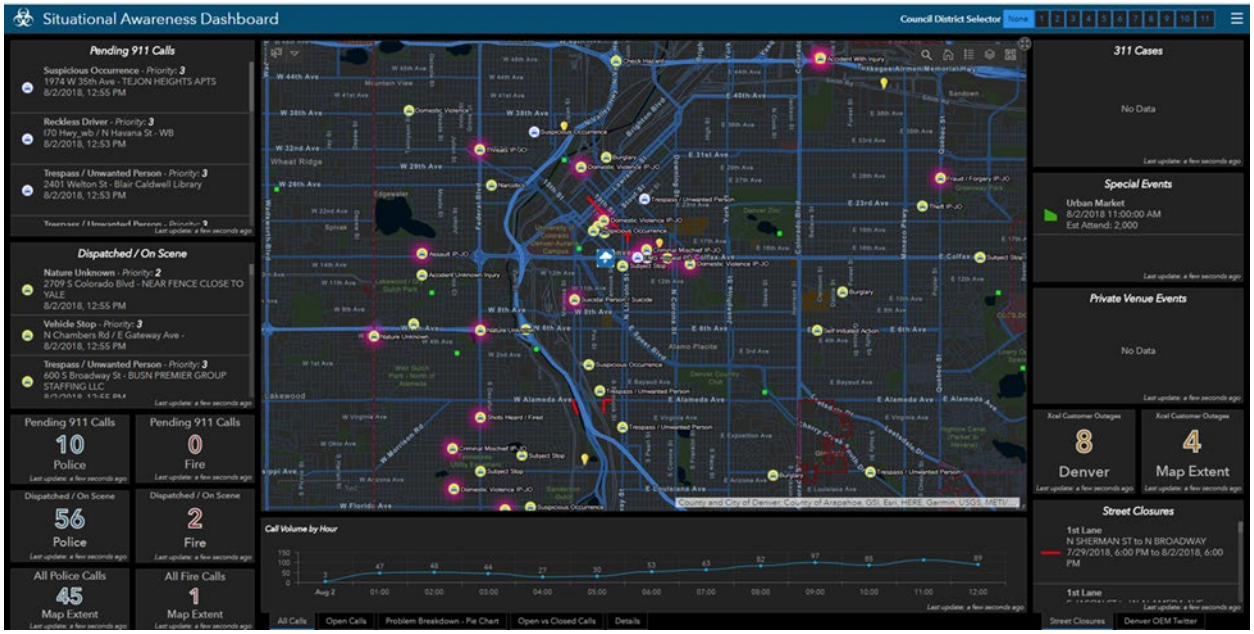


Figure 2: Denver Situational Awareness (SA) Tool (Also see Appendix C)

Key Events Timeline

Table 1: Timeline of Major Events and Numbers for COVID-19, Denver, OEM, as of Nov 18, 2020

2020 DATES	EVENT/ACTION
Feb 27	▪ Colorado Department of Public Health and Environment (CDPHE) DOC activated to Level 3
Feb 28	▪ State of Colorado EOC (SEOC) activated to Level 3
Mar 2	▪ PHE DOC activated ▪ CDPHE DOC activated to Level 2
Mar 3	▪ Denver JIC activated ▪ SEOC activated to Level 2
Mar 5	▪ Colorado's first confirmed case
Mar 6	▪ Denver EOC activated to Watch Level ▪ Denver's first confirmed case
Mar 9	▪ Denver EOC activated to Partial Level
Mar 10	▪ Colorado state of emergency declared
Mar 11	▪ WHO declared COVID-19 outbreak a pandemic
Mar 12	▪ Denver EOC activated to Full Level ▪ Denver public schools announced a three-week closure ▪ Denver state of emergency declared
Mar 13	▪ Colorado reported first confirmed coronavirus-related death ▪ Denver Mayor Michael Hancock ordered city venues to close their doors and cancel events until 12 April ▪ President Trump declared coronavirus pandemic a national emergency
Mar 16	▪ SEOC and CDPHE DOC activated to Level 1 ▪ Colorado Governor Jared Polis ordered bars and restaurants closed
Mar 18	▪ Colorado ordered all schools closed from 23 March to 17 April
Mar 19	▪ Governor Polis suspended all nonessential medical procedures in the state; extended closure of bars and restaurants ▪ Colorado received disaster declaration from the federal government
Mar 20	▪ Colorado restaurants allowed to deliver alcohol and to-go food

2020 DATES	EVENT/ACTION
Mar 23	▪ Denver issued Stay-at-Home Public Health Order (PHO) until April 11
Mar 25	▪ Governor Polis ordered statewide stay-at-home order
Mar 28	▪ President Trump approved Colorado's major disaster declaration
Apr 1	▪ Denver passenger traffic down 90% ▪ State ordered school closures extended through April 30
Apr 3	▪ Governor Polis asked all Coloradans to wear non-medical masks when they leave the house ▪ Denver schools to remain closed for the rest of the school year ▪ Regional transportation district (RTD) suspended fares and halted downtown shuttle
Apr 6	▪ Governor Polis extended stay-at-home order through April 26 ▪ Mayor Hancock extended stay-at-home PHO through April 30
Apr 8	▪ RTD reduced service
Apr 10	▪ Greeley meat-packing plant closed after second death ▪ Red Rocks Amphitheater closed
Apr 17	▪ Mayor Hancock announced the formation of the Economic Relief and Recovery Council, first kickoff meeting was held
Apr 21	▪ State ordered that all schools remain closed for the rest of the academic year
Apr 24	▪ Adams, Arapahoe, Boulder, Jefferson counties announced that they are joining Denver County in extending Stay-at-Home PHO through May 8
Apr 27	▪ Colorado statewide stay-at-home order expired ▪ State Safer-at-Home PHO effective until May 31 ▪ Retailers can open for curbside pickup service
May 6	▪ Mayor Hancock issued Face Coverings PHO, requiring face coverings in certain public places
May 9	▪ Denver stay-at-home PHO expired ▪ Safer-at-Home PHO effective through May 26
May 13	▪ Denver announced mandatory employee furlough days to close $226M budget shortfall
May 14	▪ Denver issues Full Face Coverings PHO in all locations both indoor and outdoor
May 19	▪ First LTRC meeting

2020 DATES	EVENT/ACTION
May 22	▪ Denver Pepsi Center testing site opened to the public
Jun 1	▪ State Safer-at-Home PHO expires ▪ State Safer-at-Home and in the Vast, Great Outdoors PHO in effect through June 30
Jun 180	▪ Denver EOC demobilized
Jun 24	▪ Denver JIC demobilized

Methodology

This report was developed through close collaboration between Denver Office of Emergency Management (OEM), the Denver Department of Public Health and Environment (DDPHE), Denver Public Health (DPH) and the various Denver departments and agencies that staff the Denver Emergency Operations Center (EOC), the Denver Joint Information Center (JIC) and Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC). The FEMA After-Action Report (AAR) development team conducted extensive research to confirm that the assessment of the Denver response to the COVID-19 pandemic was both comprehensive and accurate. Information was gathered by conducting numerous interviews, reviewing EOC staff surveys, EOC action plans and other relevant documents and planning guidance. Interviews and surveys included response personnel answers regarding what went well and areas for improvement following the EOC activation. All relevant information was provided to the FEMA AAR development team to support the after-action analysis.

The FEMA AAR development team also reviewed documents, reports and plans to understand how Denver's training, planning and operational activation affected their response to the COVID-19 pandemic.

From this information, the FEMA AAR development team synthesized notes, feedback, observations, and recommendations, with emphasis on identifying strengths and areas for improvement of the Denver EOC and PHE DOC activation. The FEMA AAR development team organized these observations under 15 focus areas with an observation, narrative and a recommendation to either apply lessons learned or best practices. Additionally, a lead department or agency is identified for each observation to implement actionable recommendations to improve systems and process.

The focus areas include:

- Planning
- Emergency Operations Center
- Activation Fatigue
- Public Information and Warning
- Mass Care and Housing
- Employee Redeployment
- Operational Coordination and Communication
- Situational Assessment (training)
- Logistics and Supply Chain Management
- Continuity
- Community Recovery and Economic Resilience
- Public Health Emergencies
- Information Technology
- Management

This report is intended to assist Denver city leadership, departments, agencies, and the OEM by capturing best practices and lessons learned to improve readiness and share knowledge with other emergency organizations and jurisdictions. Much of what is included in this report is based on the feedback and materials provided by agencies from across the city who participated in the response to the COVID-19 pandemic.

Observations and Recommendations

Planning

Core Capabilities: Long-term Vulnerability Reduction, Operational Coordination, Operational Communication, Planning, Risk and Disaster Resilience Assessment

Observation 1

Some members of the Emergency Operations Center (EOC) were not familiar with or were not knowledgeable of the existing Pandemic Annex in the Denver Department of Public Health and Environment's All Hazards Plan, which could have been more widely used throughout the activation.

The Pandemic Annex was well known in the Denver Department of Public Health and Environment (DDPHE). However, it was not fully integrated into EOC processes. At the time of COVID-19 response activation, the Pandemic Annex had yet to be officially adopted as policy and was not part of any previous exercise and training events outside of DDPHE.

The Pandemic Annex provides specific steps toward current and future pandemic planning efforts. The paired trainings identify preparedness shortfalls and support proper implementation and readiness by partners. At the time of this report, Denver EOC leadership determined that the Pandemic Annex will be added to Denver's overall Emergency Operations Plan (EOP) and featured in future trainings.

RECOMMENDATIONS: LESSON LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE) with Office of Emergency Management (OEM) support

- Update Pandemic Annex to reflect lessons learned from COVID-19 response.
- Include pandemic elements in future EOC training.
- Develop a tabletop exercise to evaluate the Pandemic Annex.

Observation 2

Denver Emergency Operations Center (EOC) leadership realized that previous planning had not considered a long-term activation when responding to COVID-19. EOC leadership rapidly re-adjusted plans and schedules to sustain a more prolonged activation to prevent personnel becoming overwhelmed.

Prior to the COVID-19 pandemic, real-world EOC activations occurred within short operational time frames. The typical EOC activation was usually a week or less. Additionally, responders were trained mostly on the FEMA response model that focuses on disasters such as hurricanes or winter storms. These trainings did not account for scale and duration longer than one to three weeks. Due to the nature of the COVID-19 pandemic, the EOC activation period far exceeded the length of previous activations. As the pandemic activation kept extending, it became further complicated and more challenging to maintain the EOC, Denver Department of Public Health and Environment (PHE) DOC and other supporting operational structures. Denver OEM recognized these challenges and is assessing plans that go beyond the boundaries of previous activations and is looking for long-term solutions.

A consequence of this lengthy and taxing EOC activation was personnel fatigue and staff burnout. To combat burnout, EOC leadership empowered EOC Section Chiefs to determine the best staff schedule for their individual sections. It was also left up to Section Chiefs to determine who on staff was best qualified for certain positions and when shifts began and ended.

Challenges stemmed from the modifications to staffing systems and other processes during the transition from physical co-location at the EOC to virtual operations. Procurement and logistics were impacted. The EOC Logistics Section noted numerous, duplicate orders for resources due to hasty purchases, personnel bypassing the logistics system and lack of internal coordination. Over time, the EOC Logistics Section adapted solutions and standardized their processes to limit this. In the case of duplicate orders, the Logistics Section developed ordering processes for the COVID-specific activation and established better checks and balances for long-term activation procurements.

Another element that required adaptation to long-term activation was that Continuity of Operations Plans (COOPs) did not account for above-average durations and related staff impact. Some departments abandoned their COOP because the plan's present state could not be applied to the length and needs of the COVID-19 activation. COOP implementation was because some staff, and even some departments, were not familiar with their agencies' COOPs. Newer agencies, such as the Denver Department of Housing Stability (HOST), had yet to exercise their COOP. Similarly, other departments and agencies could not use their Agency Continuity Coordinators (ACCs) effectively. These ACCs were designated to oversee the implementation of continuity for their agency or department when Continuity of Government (COG) is activated. At times, some ACCs were split between the JIC and the EOC, limiting their ability to lead individual agency continuity operations.

RECOMMENDATIONS: LESSON LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM) and agency leaders with the support of their continuity coordinator

- Update agency COOP plans to reflect long-term activation.
- Continue supporting new agencies developing COOPs within a year of their establishment.
- Develop staffing plan to encompass one-week-plus activation.

Observation 3

Certain Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) personnel were not familiar with the Emergency Operation Center's (EOC's) Planning P process, which contributed to additional hours and fatigue.

The Denver EOC uses the illustrative Planning P (see Appendix D and Figure 3) to follow incident management processes for any activation. Adapting the Planning P for a long-term activation affected Denver EOC and PHE DOC personnel. Many of the early struggles revolved around trying to fit the Planning P cycle into the operational cadence of the pandemic response. The PHE DOC steadily improved in these capabilities during the activation.

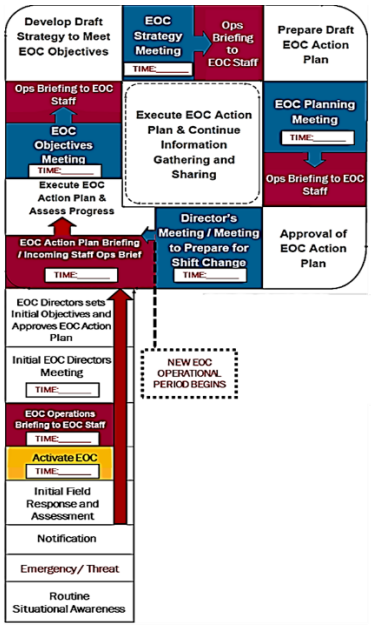


Figure 3: Denver EOC Planning P Document (also see Appendix D)

PHE DOC leadership and staff were not familiar with the Planning P at the beginning of the activation. Initially, the PHE DOC attempted to follow the Planning P guidelines, which led to longer days and staff burnout. To remedy this, meetings were combined for a better work schedule. It was

also beneficial to have an experienced incident commander responsible for the PHE DOC to provide guidance in the early days of the activation. Personnel and staff stopped their normal routine to work in the PHE DOC and did not resume their normal duties until June or July. At the time of this report, staff are currently performing PHE DOC tasks 50 percent of the time and their normal duties the other 50 percent of the time, with weekend work continuing.

RECOMMENDATIONS: LESSON LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE)

- Establish training on the purpose of the Planning P specific to PHE DOC roles and responsibilities.

Observation 4

The Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) transition to virtual operations helped improve their Incident Action Plan (IAP) forms for more effective information collection and distribution.

At the start of the pandemic response, the PHE DOC Incident Action Plan (IAP) was a hardcopy signed by hand at the end of each day. The PHE DOC staff response teams began virtualizing the document and process in mid-April as more staff were moved to work from home. Consultants were brought in from Epi Center to support the PHE DOC determination of how to streamline the virtual transition process. The consultants introduced an online (Google Sheets) version of the PHE DOC IAP as an alternative to using hand-signed, PDF documents.

Initially, the PHE DOC's IAP was constructed daily with inputs from the PHE DOC's Operations Section Chief. To maintain consistency and tracking, the PHE DOC IAP was handled using one dedicated email account. Operations sent their daily updates, which were then transcribed into the PHE DOC IAP. The PHE DOC IAP data was also checked for accuracy and timeliness by the PHE DOC's hospital liaisons to the regional hospital network and agency representatives for Denver Public Health (DPH).

This systematic, digitized method of creating the PHE DOC IAP facilitates discrete information, includes functional disciplines into the emergency response and allows personnel to communicate easily and provide the data needed for the PHE DOC IAP and dashboard. In addition to cross-team data exchange, the PHE DOC IAP was critical because it included a contact list and list of work assignments for PHE DOC personnel. This was helpful as the PHE DOC operated under a functional accountability system composed of DDPHE directors, supervisors and task force leads responsible for maintaining accountability of teams and staff.

RECOMMENDATIONS: LESSON LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE)

- Improve PHE DOC action plans and continue using digitized forms and documents.

- Implement training on platforms for digitized forms and documents, to include Google Sheets.

Observation 5

Emergency Operation Center (EOC) Situation Branch and EOC Geographic Information System (GIS) Branch were duplicating efforts, were not working together and were developing similar tools and products from different sources instead of helping each other.

The EOC Geographic Information System (GIS) Branch and the EOC Situation Branch duplicated efforts when gathering information such as COVID-19 case rates raw data for the EOC. Both branches were sitting close together but never communicated about what they were doing. This was because both the branches had very different methods of collecting informational updates and they did not collaborate effectively. The GIS Branch asked to have the case rate data automatically pulled into their dashboard display, while the Situation Branch asked for the same information for their situation report.

When virtual dashboards were developed, the EOC sections found information collection a little easier, more efficient and with real-time updates. However, the Situation Branch did not use dashboards to feed their reports. Instead, they went to each EOC section in person to obtain the required information.

The GIS Branch on the other hand, did use the virtual dashboards but wasted time determining which dashboards had the most up-to-date information. The EOC GIS Branch reviewed other section's dashboards to keep data and information synchronized.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Implement training for EOC Situation Branch and GIS Branch to collaborate with each other and with other EOC personnel.
- Confirm that EOC sections understand the GIS Branch's capabilities and that their responsibilities are not limited to mapping.
- Modify position checklists to encourage collaboration between the Situation Branch and the GIS Branch.
- EOC Situation Branch should share critical information requirements with the GIS Branch to assist with automation and creating dashboards.

Observation 6

A phased approach was implemented when the Emergency Operations Center (EOC) and Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) transitioned to a virtual environment, facilitating some staff processes, and streamlining others.

The main goal of transitioning over to a virtual environment was to relocate staff out of the physical EOC and over to remote locations where they could complete their responsibilities via teleworking. The process was slow, which some sections and staff perceived as being a hesitation to leave the EOC and go virtual. The transition to virtual sped up based on COVID-19 information coming from Seattle, Washington, and two other major U.S. cities that were two months ahead of Denver in dealing with the global pandemic.

The PHE DOC incident commander encouraged documentation and following the Incident Command System (ICS) process. A deliberate planning process developed a phased approach and identified individuals who could or could not begin teleworking. Some PHE DOC staff were reluctant to rotate out of the PHE DOC because they did not want to fall behind in their work when technology and processes were changing. The PHE DOC was unable to achieve full virtual operational capabilities until about mid-June, and the transition from analog to digital took over 2.5 months.

Both the EOC and PHE DOC transitioned from existing analog systems over to digital platforms and capabilities. Examples include transitioning from traditional whiteboards with magnets to MS Teams, MS Excel and SharePoint sites. Both the EOC and PHE DOC were also successful using electronic forms to streamline their operations, transition to a virtual environment and facilitate better knowledge management.

In April, Denver EOC personnel began talking about virtual operations and informing people not to gather in open rooms. The Denver EOC moved to MS Teams first. The PHE DOC had not yet exercised their virtual capabilities as they were uncertain whether MS Teams was an approved technology platform allowed by the city. A virtual documentation plan provided additional guidance. The transition sped up when city technology services assisted with implementation, which allowed the PHE DOC to send task and team leaders home. This reduced the number of personnel from 90 on the floor to two or three people in the building.

The transition plan called for phasing the branches first, then the Section Chiefs. The plan also identified which functions could go remote and in what order.

RECOMMENDATIONS: BEST PRACTICE AND LESSON LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM) and Denver Department of Public Health and Environment (DDPHE)

- Formalize the virtual and digitized process of emergency response for both the OEM and DDPHE.
- Continue training personnel on virtual and analog processes for proficiency and consistency.

- Maintain the analog systems to use in case virtual capabilities are unavailable.

Observation 7

The Emergency Operations Center (EOC) processes and EOC Action Plan prioritized equity in both response and recovery operations.

The Denver EOC leadership prioritized equity in each COVID-19 EOC Action Plan and implementation. For consistent equity accountability and considerations, the EOC developed an equity review to catalog and address unintended consequences in recovery and staffing standards and to provide safety and security to deployed staff. In addition to the EOC's plan review process and staff standards, the JIC worked to make sure information reached the affected audiences.

The equity review process was initiated as a task in the development of each EOC Action Plan. The EOC Liaison Section, staffed by the Office of Equity and Social Innovation and additional city agencies, developed a questionnaire that task leads were required to fill out. The questionnaire asked for an assessment of the affected communities (i.e., communities of color, older populations, etc.), and possible unintended consequences such as difficulty introducing access to COVID-19 services. From there, the Action Plan was assessed by subject matter experts in the Liaison Section, a review body composed of liaison individuals and agencies. Any concerns and issues were addressed by the larger EOC body. One example was to review action plan(s) to redeploy part-time staff who did not have health coverage due to their employment status. The review body determined that staff with limited health coverage should not be deployed in cases with likelihood of COVID-19 exposure.

For reference and example, the Denver Citywide COVID-19 Recovery Action Plan, Version 11; Aug 20, 2020 identified equity as a key component throughout the plan. This plan was designed for whole community recovery actions for Denver and reflects the city's commitment to equitably serve all Denver residents. Equity is highlighted throughout several objectives and strategies. Each of the plan's objectives and actions are being moved through the equity review process. Each recovery objective has several key tasks to be accomplished. Each task also underwent a review consisting of an assigned evaluation, completed evaluation and an equity review.

RECOMMENDATIONS: BEST PRACTICE

Responsible Agency or Department: Office of Social Equity and Innovation and Office of Emergency Management (OEM)

- Codify equity review process so that future EOC action and recovery plans include equity reviews.

Emergency Operations Center

Core Capabilities: Operational Communication, Operational Coordination, Planning

Observation 8

Denver Emergency Operations Center (EOC) Section Chiefs determined the best operational shifts during the prolonged activation. This mitigated staff burnout by incorporating more staff, but also created new challenges with coordination and communication.

A month into the activation, EOC and Joint Information Center (JIC) leadership realized the current structure with two shifts was difficult to maintain. Shifts were adjusted to allow staff to complete their normal job and their EOC job. Some EOC sections implemented rotations of one day on and one day off. Maintaining information sharing while executing their normal duties was demanding. The challenge was further compounded by a lack of depth in certain positions. A third shift was established for some EOC sections with additional staff and personnel. A staff schedule was established with three days on and four days off.

Figure 4: Denver EOC

Due to time constraints, EOC Section Chiefs determined the best battle rhythm for their individual sections. Staffing varied per shift but stayed consistent in roles and responsibilities and shift times. Section Chiefs determined who was best qualified for each position and when people reported for their shift. Not every section arrived at the same time, which caused miscommunications, tracking issues, duplication of efforts and little or no clarity on key decisions.

To overcome information gaps, a detailed email with key issues, discussion points and links to documents and folders was provided for all EOC staff to maintain situational awareness and prepare for the next day's EOC Action Plan. Color coding was also added to the EOC Action Plan to highlight changes to the plan so the next shift would know what to discuss. An email exchange was implemented early in the activation to replace the physical handoff between staff.

EOC Section Chiefs not currently on shift often listened virtually to the operations brief to hear what was happening and to maintain situational awareness. This helped them to understand how each day unfolded and replaced the normal physical handoff since the EOC was not conducting 24-hour operations that were typical during previous EOC activations. Additionally, the EOC was open from 9 a.m. to 5 p.m., leaving 16 hours in between shifts.

RECOMMENDATIONS: BEST PRACTICE AND LESSON LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Maintain standard shift times while also allowing Section Chiefs to own scheduling.
- Develop position depth across all EOC sections.
- Develop or refine a battle rhythm for long-term activations, to include virtual requirements due to incidents like COVID-19.
- Formalize the process for operational shifts during the prolonged activation to enable flexibility.
- Coordinate PHE DOC and EOC communications and operations to prevent loss of communication.

Observation 9

The overall Emergency Operations Center (EOC) facilities and design proved to be inadequate for the COVID-19 response.

Numerous staff interviewed stated the work areas and space availability of the Denver EOC were too small, inadequate and did not allow proper social distancing in accordance with CDC COVID-19 guidelines. For social distancing, certain sections were dispersed to other floors of the building or placed in available spaces in buildings nearby. Additionally, the building where the Denver EOC is located is not compliant with the Americans with Disabilities Act (ADA). It provides wheelchair access to the main floor only, and other areas of the building are accessible only via stairs.

Other staff interviewed stated the EOC's configuration worked but was not optimal since the EOC was in the basement of the City and County Building. The EOC has small spaces, low ceilings and no daylight. A few additional rooms were accessible, but some of these meeting spaces and work areas were not always available. No sink was available to wash hands and restrooms were limited. Staff had to eat meals in an adjacent hallway and no kitchen was available to wash dishes. During a long-term activation, these things only added to the staff's frustration.

Other staff thought the EOC's initial response was good but became less effective as the activation continued. Spreading out to different offices and buildings solved the social distancing problem but caused additional issues with communications and collaboration. The layout of the EOC requires that portions of the facility be open for non-EOC staff to pass through. This caused a constant flow of

people passing through the space with no accountability. The EOC facility has not grown with the city over its 50 years of operation.

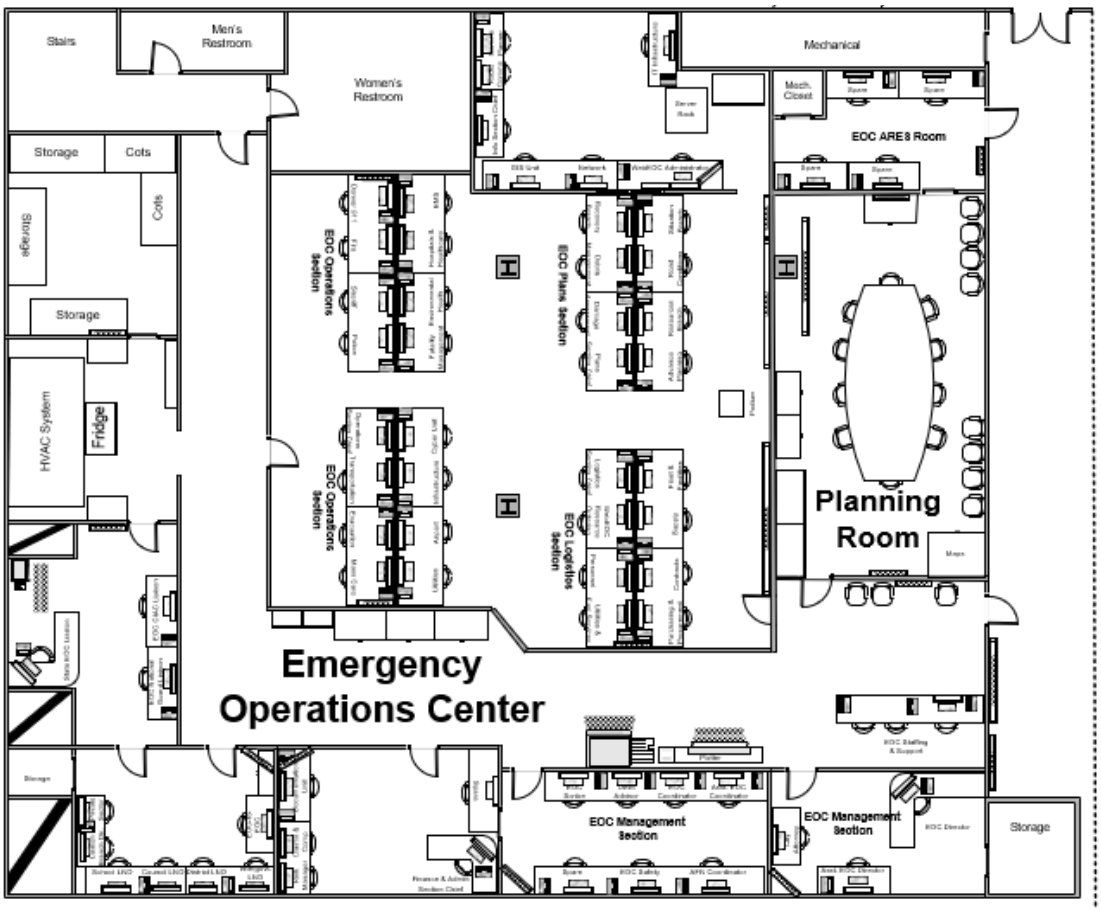


Figure 5: Denver EOC Floor Plan (also see Appendix E)

RECOMMENDATIONS: LESSON LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM) and Department of Finance (DOF)

- EOC site and physical layout is not adequate. A new facility with capabilities and security is needed.

Activation Fatigue

Core Capabilities: Community Resilience, Planning, Risk, Disaster Resilience Assessment

Observation 10

Staff had to execute emergency operations while simultaneously performing normal duties. These competing requirements led to longer hours and staff burnout.

Each focus group expressed frustration with having to execute their Emergency Operations Center (EOC) duties while simultaneously performing their normal duties. Key observations include:

- Hours added to the work week.
- Had to work mass care and housing while also serving as the Continuity of Operations Plan (COOP) SME at the same time.
- Difficult to manage a workload without putting in 100 hours per week.
- Lucky to switch back and forth between jobs.
- Worked 12-15 hours a day and handled the day job after being in the EOC.
- Putting in 16-hour days and doing routine work on top of that was a lot of pressure.

Due to the prolonged activation, the operational tempo caused considerable burnout and fatigue. Staff members discussed the numerous methods employed by leadership and management to cope with the stresses of a long-term activation. Some of the methods of dealing with the stress included:

- Recognizing stress
- Talking
- Three shifts
- Getting as much sleep as possible
- Recognizing that everyone experiences burnout
- Facilitating good communication with staff and leadership
- Leaders checking on the status of their personnel
- Taking breaks
- Realizing that you cannot do things alone
- Making resources available to help personnel

Those in the Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) shifted to primarily pandemic-related duties and resumed their normal responsibilities in mid-summer. By fall, PHE DOC personnel's scope focused evenly on the pandemic and their normal daily roles. Rotating staff out of the PHE DOC was discussed, but staff were reluctant to do this as they did not want to fall behind when new technologies and processes were being introduced. For the PHE DOC, the transition from paper to virtual tools took 2.5 months. Throughout the pandemic, PHE DOC personnel also worked weekends to maintain operations and anticipate issues.

RECOMMENDATIONS: BEST PRACTICE

Responsible Agency or Department: Office of Emergency Management (OEM) and Denver Department of Public Health and Environment (DDPHE)

- Develop staff schedules for long-term activations.
- Develop strategies and plans to commit some staff to emergency management operations while the rest of the staff sustain essential functions.

Public Information and Warning

Core Capabilities: Environmental Response/Health and Safety, Operational Communications, Planning, Public Information, Warning

Observation 11

The Joint Information Center (JIC) Strategist position allowed more timely information between the Denver Emergency Operations Center (EOC) leadership and the JIC.

The JIC Strategist position was created once the JIC recognized the critical communications gap between the JIC and the EOC. Using the Strategist position, the JIC provided a communication strategy with the goal of improving general communications with Denver EOC leadership. The JIC Strategist position had authority to make real-time decisions with other EOC leadership who were citywide senior leaders. This proved to be more effective and efficient than having a liaison who had no delegated authority and required advice on how to proceed.

The selected JIC Strategist must have existing authority to make weighted decisions as an executive director. The individual must also have experience in marketing and crisis communications. In this case, the JIC Strategist was a mayoral appointee. This was not difficult to process because of the close working relationship and because the selected individual was already a JIC Manager. The JIC adjusted the roles and responsibilities of others to cover any gaps resulting from this shift. One such shift was elevating a deputy on second shift to JIC Manager.

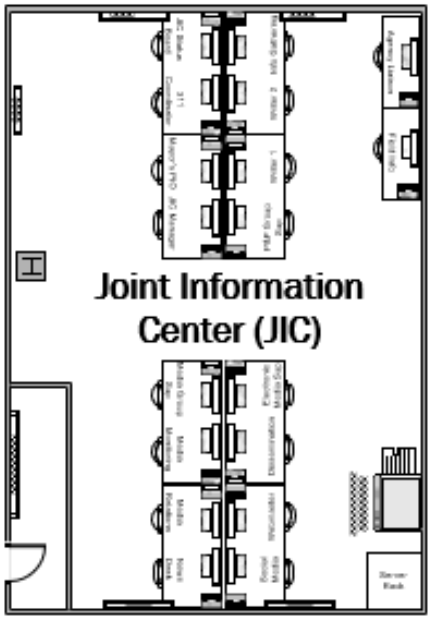


Figure 6: Denver JIC Floor Plan (also see Appendix E)

RECOMMENDATIONS: BEST PRACTICE

Responsible Agency or Department: Office of Emergency Management (OEM)

- Add JIC Strategist position to planning guidance for future long-term activations.
- Have JIC Strategist position in place for long-term activations; shorter activations are unnecessary.

Observation 12

The removal of Public Information Officers (PIOs) from the Joint Information Center (JIC) by other departments overloaded the remaining JIC personnel.

Coordination challenges arose from the differing rotations among the sections. Executive directors pushed back when the JIC requested their PIOs to staff the JIC. This led to a disconnect in communication while in the JIC and during shift changes. Also, several departments and agencies either removed their PIOs from the JIC or allowed their PIOs a limited presence only in the JIC. This created continuity and information gaps during shift changes and forced the remaining personnel to work 12-hour shifts in the JIC, plus another 5-6 hours working from home for their normal duties.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Have a first, second and alternate shift staffed and trained to deploy.
- Work with the Mayor's office to develop policies that all PIOs will staff the JIC.
- Develop training for executive directors on the importance of the EOC and JIC during a disaster to gain support for sharing PIOs.

Observation 13

All public communication must be coordinated through the Joint Information Center (JIC) and handled strategically across city agencies.

The JIC's role is to make sure communications are correct and coordinated throughout the entire city. Information requests must be properly vetted and processed using the JIC's communication process. Due to the sensitivity of the information and the public's concerns, the JIC's communication and coordination process can be time consuming and gives the perception of a slow response.

Agencies like the DDPHE felt the process for communicating health or safety issues was too slow in getting certain health information out to the public quickly. The JIC acknowledged times when

agencies wanted to get information out to the public swiftly but stressed the importance of taking the time to develop an accurate message or response.

Figure 7: Media preparations in the Denver EOC (Source: Denver Post)

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Citywide Agencies and Office of Emergency Management (OEM)

- Adopt the FEMA ICS JIC model for JIC, intergovernmental affairs and community relations collaboration.
- Develop rapid communication methods to avoid information backlogs.
- Assess JIC communication policies to integrate departments and agencies into communication decision-making and message distribution.
- Continue review and approval processes with lead agencies to meet message release standards.
- Define processes between all Denver DOCs and the JIC for coordinating messaging and synchronized information exchange.
- Move the city council liaison into the JIC to streamline the message coordination process.
- Develop a process map for the EOC Liaison Section to identify who they interact with.

Observation 14

Information request processes and procedures were not followed, resulting in multiple requests for similar products (media, flyers and messaging) from different personnel.

Responses to information requests or inquiries from the media were a controlled process handled through the Joint Information Center (JIC). When an inquiry was received by the JIC, it was processed, a response was drafted, and a follow-up was conducted with the reporter. The information request process enables the Mayor's Public Information Officer (PIO) to assess responses and review answers through a political lens.

The challenge arose when random but related requests were made from the Emergency Operations Center (EOC) to the JIC. This was confusing because little or no analysis was applied. One request could have three different messaging product requirements for the same event or issue. For example, one person asked for a flyer, another person requested talking points, yet another person requested something for social media, all for the same town hall meeting. During the interviews, JIC staff stated these situations were frustrating because it appeared the EOC sections were simply not talking to each another.

The JIC developed a status board and required the submission of a form through MS Teams that included analysis regarding the request(s). The JIC did not use the same process for media requests. The JIC staff had to remind other EOC sections and personnel not to route media requests through MS Teams. Additionally, the JIC was requested to provide data for certain dashboards and that information belonged to the EOC Information Section. Essentially, an attempt to use other tools (e.g., going into MS Teams and established a product planner) could not get people to understand the JIC processes.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Continue implementation of the formalized information request process through MS Teams.
- Train EOC members in using the JIC forms and processes when requesting JIC support.

Observation 15

The Joint Information Center (JIC) leveraged social media feedback to effectively deal with misinformation and rumors throughout the Denver metropolitan area.

Approximately three calls a day dealt with misinformation and rumors on social media which the JIC staff and personnel knew were incorrect. The goal was to get the information to the social media team and back out to the 311 website. 311 is a web tool that provides Denver residents access to city services. The updated information and/or guidance from those daily misinformation calls was

shared with 311 and social media. A fusion team researched social media sites to catch misinformation and monitor trends.

RECOMMENDATIONS: BEST PRACTICE

Responsible Agency or Department: Office of Emergency Management (OEM)

- Document best practices on how to effectively deal with misinformation posted on social media platforms.
- Place a social media subject matter expert (SME) in the JIC to help devise strategies to effectively address social media misinformation.

Observation 16

Expectations on message release authority and the desire to answer questions from the public led to misunderstandings and confusion.

The Denver Emergency Operations Center (EOC) and Joint Information Center (JIC) already had an established approval process to determine what leadership wanted to discuss. A process of obtaining guidance on what topics leadership wanted to discuss *from a response point of view* was added during this activation. JIC developed the message, then it was sent to leadership for approval.

The approval process was slow at times but necessary since accuracy was required to avoid mistakes. When dealing with calls and social media, some leaders assumed that silence could be replaced with misinformation. The accepted belief was that it is easier to untangle the message afterward rather than providing no information at all, which can create distrust.

The JIC understood that city leadership might want to take some time to formulate a response. To avoid any information gaps, the JIC produced “holding statements” such as, “we will have a response in two hours” or “updates will be provided tomorrow,” or words to that effect. The JIC might not address the issue or question directly but using holding statements with some information was better than providing nothing at all.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Develop strategies for handling lack of information and train EOC leadership.
- Be honest. If there is no answer, there is no answer.
- Confirm that leadership understands the purpose of holding statements to fill key information gaps.

Observation 17

The Joint Information Center (JIC) conducted training to bring new personnel up to speed and develop relationships before another crisis.

The Denver JIC personnel observed that previous training did not prepare them for an incident like COVID-19. They identified the need for training in crisis communications, media preparation and writing. JIC personnel were well versed on how to operate MS Teams and stated that other Emergency Operations Center (EOC) members must be trained on how to talk to media and reporters.

RECOMMENDATIONS: BEST PRACTICE

Responsible Agency or Department: Office of Emergency Management (OEM)

- Continue new personnel training for the JIC.
- Continue offering the Denver Basic EOC Operations Course and Denver Annual EOC Refresher Course.

Observation 18

The Joint Information Center (JIC) and Emergency Operations Center (EOC) lacked coordination and communication.

A necessary coordination adjustment during the pandemic response was making sure partners and groups, including the JIC, understood the EOC's roles and operations. The EOC is designed to make quick, informed decisions. This decision-making process does not always reflect steady-state scenarios. Due to rapid decisions at the EOC, precautions and next steps were not consistently communicated to the JIC and those in city operations, departments and staff.

Some of these quick decisions came from coordination meetings in which responding partners and agencies made decisions during real-time discussions. JIC personnel were more involved in planning meetings, which did not have the same level of decision-making as the coordination meetings. The JIC decided to not attend the afternoon meetings due to scheduling conflicts. The JIC did not inform EOC leadership of that decision, nor did they seek guidance or assistance from leadership to resolve schedule conflicts. Also, the EOC did not know the JIC was on a different schedule; JIC hours were different and longer than those of the EOC.

At the start of the response, the JIC's pace of operations was rapid with not enough time for JIC members to attend all the EOC meetings. Understanding of when and where JIC personnel should be involved in decision-making and ongoing meetings was inconsistent. At times, the JIC personnel received information after a decision was made but were not aware of the timeline or context because they did not attend the meeting where the decision was made. In some instances, the JIC

received several, sometimes conflicting, decisions from rainbow meetings. As a result, JIC members were also spending time untangling conflicting information before communicating to wider partners.

It was helpful for the JIC to have experts who could provide ground truth for incoming information, verify outgoing communications were accurate and communicate back to the Denver EOC.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Write media preparation and training for citywide PIOs and other key personnel outside the JIC as needed.
- Expand EOC personnel training so they understand JIC roles, responsibilities and what the JIC does.
- Develop a more collaborative relationship between the EOC Liaison Section and JIC.
- Develop and conduct the Denver Advanced EOC Operations Course to include public information processes.
- Develop a checklist for personnel attending media training, advanced EOC course and JIC roles and responsibilities.

Mass Care and Housing

Core Capabilities: Community Resilience, Housing, Mass Care Services, Planning, Risk, Disaster Assessment

Observation 19

The existing Denver Emergency Operations Center (EOC) organizational chart was not followed when deploying Mass Care Services. Instead of being handled by the EOC Mass Care Branch in the EOC Operations Section, an ad hoc section called the EOC Sheltering Section was created. This led to confusion and uncertainty.

Establishing a separate EOC section just for sheltering activities was confusing and led to uncertainty between Denver Department of Housing Stability (HOST) and Denver Human Services (DHS). It also made most EOC documentation obsolete as it did not include a Sheltering Section. Operating shelters as part of Mass Care is the national standard for Mass Care Services and Housing Planning. A separate Sheltering Section was not needed. Sheltering in Denver must be run by Denver Human Services (DHS), the lead agency identified in the Denver Emergency Operations Plan (EOP) for the Mass Care Services core capability. HOST should support DHS with sheltering efforts. The national standard on sheltering must be followed in the future, with the Denver EOC Mass Care Branch interfacing with the Mass Care DOC operated and staffed by DHS and HOST personnel.

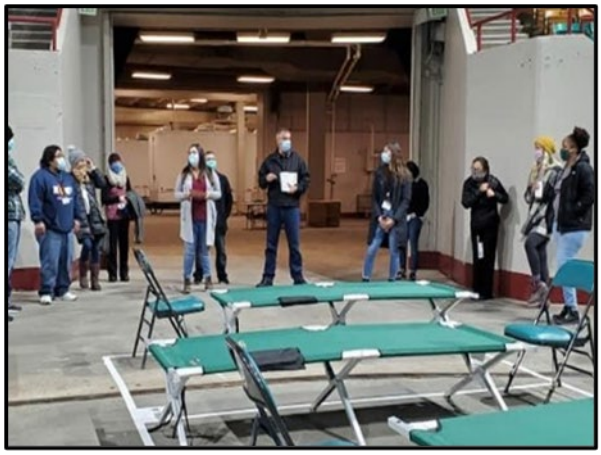


Figure 8: Denver training for shelter teams

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Denver Human Services (DHS) and Denver Department of Housing Stability (HOST)

- Continue refining HOST roles and responsibilities in short- and long-term EOC activations.

- DHS and HOST need to develop a Mass Care DOC that is integrated, with formalized training and exercises.
- Identify the sheltering process, focusing on recovery tasks.
- Confirm that response activation and operations follow national standards for sheltering under Mass Care and Recovery.
- Confirm that the Mass Care DOC can manage mass care recovery operations once the EOC is closed.
- Moving forward, all Denver emergency sheltering activities should be managed by the EOC Mass Care Branch and the Mass Care DOC

Observation 20

The Denver Department of Housing Stability (HOST) was a new organization without the emergency infrastructure or training that other city agencies had. HOST was brought into the Emergency Operations Center (EOC) and tasked with running shelter operations in partnership with the EOC Mass Care Branch.

Under normal circumstances and during short-term incidents, shelter is provided for those persons displaced by the incident and who need housing. In Denver, the new Department of Housing Stability (HOST) was designed to keep people in their existing homes, resolve homelessness and connect people with affordable housing. HOST was stood up in October 2019 and was briefly introduced into the Denver Emergency Operations Plan (EOP), but unable to develop their portion of the EOC plan before COVID-19 impacted the city.

HOST was initially identified as EOC HOST Liaison but was later changed to the EOC Sheltering Section Chief when the need for leadership over sheltering was identified. Since HOST was new, conversations revolved around having the EOC Mass Care Branch, staffed by Denver Human Services (DHS), continue to lead sheltering efforts.

HOST has drafted a plan on how to operate within the Denver EOC, has provided a management structure and has identified additional needs that should be formalized to replicate what was done during the COVID-19 response. Additionally, guidance is needed both for people currently experiencing homelessness and for those who become displaced and homeless after an incident or emergency. A synchronized effort for supply requests is also needed to avoid duplication of effort in the future.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Denver Human Services (DHS) and Denver Department of Housing Stability (HOST)

- Continue refinement of HOST roles and responsibilities during short- and long-term EOC activations.
- DHS and HOST need to develop Mass Care DOC that is integrated, with formalized training and exercises.
- Identify the sheltering process, focusing on recovery and the tasks needed.
- Confirm that response activation and operations follow national standards for Mass Care and Recovery.

Observation 21

COVID-19 required a wider range of sheltering support than the city's network provided pre-COVID-19, including non-congregate shelter, 24/7 operations and more space to support social distancing.

The nature of this large-scale emergency response greatly altered the sheltering system. During previous activations, the primary purpose of sheltering and housing was to support individuals who had been displaced or left homeless because of an emergency. This changed during COVID-19 to care for not only displaced persons and families, but also for the homeless population throughout Denver.

Those establishing shelters were tasked to do so rapidly. At the start of the response, hotels had limited interest in taking people in and no contracts were in place to work from. Denver Human Services (DHS) was still developing its emergency planning documents and processes. Their response was hampered because only one staff member had experience, and the rest of the staff were new. Massive coordination was needed to identify and account for bed space, isolation space, sanitation needs, resident tracking and social service assistance when redesigning the sheltering system during COVID-19. Additionally, responders were also developing strategies for supply procurement and distribution while not having enough personnel to run the expanding number of shelters.

Denver Department of Housing Stability (HOST) is the agency that provides support and resources for people experiencing homelessness. During the COVID-19 activation, HOST was tasked to provide staff and direct services support for shelters. HOST coordinates contractors to operate shelter facilities; the city did not directly operate shelters pre-COVID. HOST had to engage service partners to operate new congregate and non-congregate shelter facilities. HOST partnered with key organizations such as Colorado Coalition for the Homeless, Catholic Charities and the Denver Rescue Mission to help staff shelter sites. These organizations have extensive experience operating shelters. Primary and behavioral health care providers were brought in to help those at shelters and provide referrals to other critical services. Despite staffing challenges, shelter leads made sure to keep day and night shelter managers consistent to provide a sense of security for the shelter population and for management consistency.

Shelter and service providers were key to understanding who still needed services and whether additional support was needed. Eventually, six non-congregate shelter hotels were activated for respite (COVID-19-positive or those medically referred for isolation) and protective action (those identified as high risk). Auxiliary shelters were set up to provide social distancing and other support. All these sites were part of the FEMA application for all sheltering efforts, bringing in roughly 810 rooms and capacity for about 1,000 beds. Additional hotels were brought into the system when one auxiliary site was no longer a partner.

The pandemic significantly impacted Denver's shelter capacity, which lost 1,200+ beds because of new guidelines for COVID-19 safety. These emergency congregate and non-congregate shelters helped to maintain lost capacity due the pandemic. Three existing shelters continued to operate at reduced capacity. Denver recreation centers were used to provide relief and social distancing for those in congregate shelter settings, and equipment and supplies such as personal protective equipment (PPE) were needed to operate those shelters.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Human Services (DHS) and Denver Department of Housing Stability (HOST)

- Capture and define the different shelter types that could be created and under what circumstances they would be used, i.e., short- or long-term incidents.
- Establish a Mass Care DOC with DHS to handle sheltering.
- Conduct training for employees identified to work in shelters.
- Conduct additional training and outreach with homeless service providers on emergency sheltering.

Observation 22

A communication strategy was aimed at persons experiencing homelessness to provide services, support and transportation to shelters

As a new agency, Denver Department of Housing Stability (HOST) lacked resources but still operated effectively while conducting a targeted outreach to persons experiencing homelessness. Once shelters were established, transportation was provided to medical facilities, shelters and from unsheltered homelessness. Regional Transportation District (RTD) buses assisted in taking people in affected communities to the shelters.

Spreading the word on services, support and transportation was done in person, with printed materials provided to the recipients. Members and partners in the Homeless Leadership Council assisted with outreach and formulating shelter decisions and strategies. Providers and Denver Department of Public Health and Environment (DDPHE) held daily discussion calls.

DDPHE created posters and flyers for shelters, describing how to identify the symptoms of COVID-19. Other communication messages included protocols on how to use shelters and how to execute congregate and non-congregate sheltering. Additionally, public health and the community service providers coordinated on 1) who was accessing the facilities, 2) who was being discharged from medical facilities, and 3) where people could go.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Denver Department of Housing Stability (HOST)

- Establish a written communications procedure based on the actions used during the COVID-19 response.
- Continue targeted communication outreach in partnership with service providers for those experiencing homelessness.

Observation 23

Managing shelter staffing was a challenge due to the various types of shelters and unclear requirements.

Typical shelter staffing planning is for one week or more, depending on the incident. This was not the case for the COVID-19 response. Denver Department of Housing Stability (HOST) and other partners moved quickly to stand up additional congregate and non-congregate shelters to relieve pressure on the existing shelter network and provide opportunities for isolation. While some service partners consolidated operations at other facilities to help staff these shelters, significant gaps still remained. HOST partnered with Denver Human Services (DHS) and Denver Office of Human Resources (OHR) to identify city staff who could be redeployed to support shelter staffing. A handful of positions were staffed from both agencies, but many shelter staff were still needed. OHR recruited only a limited number of personnel from other city agencies. OHR had to balance the challenging conditions of shelter deployment against the possibility that staff, or a household member was listed in the vulnerable population category, as this limited their ability to work at a shelter.

To answer this limited shelter staffing, two strategies were developed. First, the Colorado National Guard was called in to support sheltering sites. This brought in more than 150 members of the Army and Air Force to support congregate and non-congregate sheltering sites. Second, DHS hired a pool of on-call emergency shelter workers to support primarily non-congregate shelter sites. The approximately 90 temporary staff hired prior to these sheltering operations transitioned to the Salvation Army. Hiring temporary staff helped transition redeployed DHS team members back to their regular agency roles.

Shelter security staffing was also a challenge, with contractors engaged to support congregate and non-congregate sheltering sites. Denver Police Department provided limited support at the initial opening of some sites, and for a Salvation Army site that experienced some security issues.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Human Services (DHS) and Denver Department of Housing Stability (HOST)

- Expand sheltering plans so that the city can provide adequate sheltering capacity and resources.
- Develop security requirements for shelters and shelter populations.
- Train volunteers, partners and city staff to support the sheltering infrastructure.

Observation 24

Identifying available space and accommodations was needed for persons experiencing homelessness and displaced populations to safely enable social distancing and isolation.

The Denver Department of Finance (DOF) Real Estate team had the expertise and capability to identify and vet hotel and motel options for isolation and congregate and non-congregate sites during the COVID-19 response. The DOF Real Estate team coordinated with partners and outside contractors responsible for managing city real estate.

With the assistance of real estate professionals, six hotels were used as part of activated respite public assistance (PA) supported through the FEMA relationship, plus two auxiliary shelters at the Denver Coliseum and National Western Complex. A total of 810 rooms had capacity for about 1,000 beds. The National Western was removed but a few other hotels were added to provide space and accommodations.

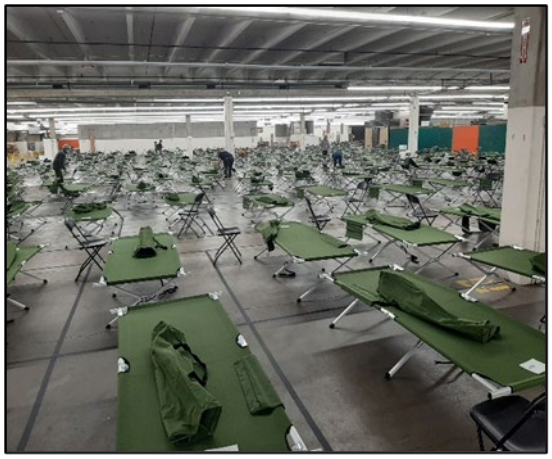


Figure 9: National Western Complex

Denver also received assistance from charitable organizations such as the Colorado Coalition for the Homeless and International Medical Relief, which provided medical care and case management for some of the persons who were experiencing homelessness. Specifically, the Colorado Coalition for the Homeless helped identify and staff some facilities where people could be referred for isolation.

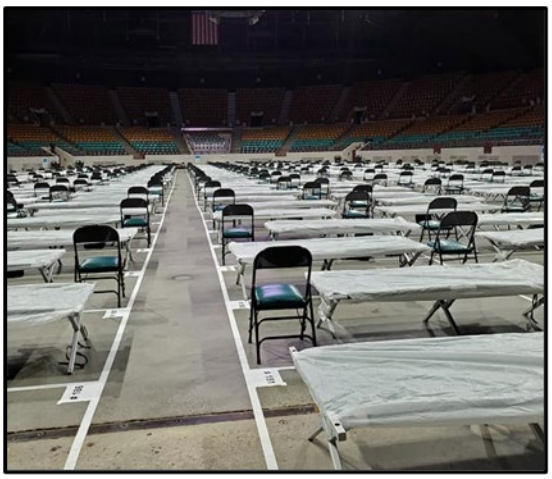


Figure 10: Denver Coliseum

Denver contracted with partner agencies such as Catholic Charities and the Colorado Coalition for the Homeless to operate shelters or conduct support operations. The Denver Human Services (DHS) staff who operated the hotel sites had to formulate operating procedures for staff who were being managed directly. The operating procedures included best practices and partner discussions and were unique to sheltering sites for this emergency.

The Homeless Leadership Council (HLC) is a group of leaders from some of the largest shelters across Denver. They provided considerable support in terms of guidance, best practices and strategy. The HLC initially met every day to coordinate and develop strategies for those experiencing homelessness, then later reduced meetings to three times a week. The Homeless Leadership Council was a valuable resource for shelter policy development and establishing facilities.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Human Services (DHS) and Denver Department of Housing Stability (HOST)

- Develop a process for non-congregate shelters.
- Reassess redeployment of city employees to provide enough trained individuals, particularly shelter managers, to work in the shelters.

Employee Redeployment

Core Capabilities: Community Resilience, Planning, Risk, Disaster Resilience Assessment

Observation 25

The Mass Care Department Operations Center (DOC) did not exist, which led to a staffing shortage for housing and sheltering operations.

At the beginning of the Denver EOC activation, the EOC Mass Care Branch had no staff with decision-making authority. Some personnel had been employed for only a short time and had limited opportunity to read the Emergency Operations Plan (EOP). At the time, only one emergency management subject matter expert (SME) on mass care was available, but this person did not have decision-making authority. New personnel were brought in when mass care suffered from personnel shortages. Some did not have any previous Denver EOC experience but did have experience with the Incident Command System (ICS). These people were familiar with basic emergency response concepts but not with Denver's specific ICS application. Other people assigned to the Denver EOC later deployed for about a week and underwent on-the- job training.

At this critical time most of the deputy executive management team was absent, and only one person present was well versed in what actions needed to be completed. More than one SME is needed to be fully functional and ready to execute the mission.

The Colorado National Guard stepped into a role that is atypical for them and filled the personnel gap at the sheltering sites. The Soldiers proved to be an asset, and despite concerns about them being in uniform, the shelter residents appreciated the sense of security they provided. When the National Guard left, security was in place to help everyone feel safe.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Human Services (DHS), Department of Housing Stability (HOST) with Office of Emergency Management (OEM) support

- Continue to train and develop HOST and DHS staff to better integrate with the Denver EOC Mass Care Branch.
- Designate and rotate persons with authority to make decisions to move critical sheltering issues forward.
- Develop bench depth regarding mass care.

Observation 26

Denver citywide agency leadership was uncomfortable allowing their employees to operate in elevated risk environments, which led to delays in filling key or critical positions.

Properly using non-essential city staff (who were not working because city services were closed due to COVID-19) was a struggle. At times, managers intervened when their employees were sourced to work outside the scope of their normal duties and responsibilities.

Those identifying staff to fill roles and to clarify the requirements of the requesting agency were frustrated. Some key questions regarding requirements for deploying people or hiring temporary personnel included:

- How many shifts needed to be filled?
- What roles were to be filled?
- What responsibilities would be necessary?
- What personal protective equipment (PPE) would be provided?

Some managers and department leaders identified that employees were essential to prevent them from having to be redeployed to other tasks in the city. A clear, defined disaster redeployment process must be put into place so expectations during an incident are understood. The city had begun developing essential employee roles prior to COVID-19, with the intent of assigning all staff a redeployment role, but no policy was in place when the city was shut down for COVID-19.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Office of Human Resources (OHR)

- Need a clearly defined redeployment policy in place, and make sure that staff are trained on its use and expectations.
- Review eligible, essential employee roles to assign everyone a redeployment role.
- Review the staff positions and confirm that they accurately identify essential staff.

Observation 27

No clear guidelines identified which citywide personnel were deemed essential or non-essential.

Some staff did not know they were deemed essential personnel until after the COVID-19 activation had occurred. The question of who was essential existed at all levels of government, and both exempt and nonexempt staff questioned their status. This caused confusion and concern about why a nonexempt position was deemed essential, requiring the staff to stay in the office and not be allowed to telework.

Prior real-world activations (such as the March 2019 Webb Building power outage and 2019 snowstorms) highlighted the need to re-evaluate essential versus non-essential positions across all of government. During those activations, some staff believed they fell in the non-essential category, when, in fact, their position was deemed essential in their agency's Continuity of Operations Plan (COOP).

The Denver Sheriff Department (DSD) stated it would have been beneficial to exercise their COOP before the pandemic. During interviews, the DSD stated essential personnel identification was necessary, since the DSD has many moving parts that require daily staffing. Two examples the DSD provided were jail staff (necessary despite reduced inmate population) and the vehicle impound lot.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Office of Human Resources (OHR)

- Continue to work with the OHR to define essential and non-essential personnel.
- Confirm that departments and agencies understand and inform their personnel on which positions are essential and which are not.
- Manage personnel expectations by identifying who can or cannot be redeployed or reassigned.

Operational Coordination and Communications

Core Capabilities: Intelligence and Information Sharing, Operational Communications, Operational Coordination, Planning, Risk and Disaster Resilience Assessment, Situational Assessment

Observation 28

The Denver Emergency Operations Center (EOC) planning meetings were conducted according to the EOC Action Plan, however, information from these meetings was not consistently shared down to section personnel.

Denver EOC planning meetings were held in accordance with the EOC's Planning P (see Appendix D and Figure 3) and EOC Action Plan. All EOC Section Chiefs were in attendance, which allowed information sharing across all sections. The outcomes from these meetings were not always shared down to the section-level staff. EOC Section Chiefs were encouraged to have regular meetings with their staff, but they did not always follow through. EOC Section Chiefs were not consistently sharing information and knowledge from key meetings with their personnel. This caused some section personnel to learn about meeting updates and briefing information only after the information was made available to the public. Additionally, some personnel found information from other sources such as social media before getting official updates through the Denver EOC. It was then recommended to have a note taker at the meetings to provide information to the section staff following the meeting.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Formalize guidance and training to emphasize the purpose and intent of key meetings in the sections.
- Develop Denver EOC Section Chief training that emphasizes the importance of holding EOC section meetings or huddles regularly.
- Designate a scribe to take notes and provide information to section staff after meetings.

Observation 29

The issuance of public health orders and the rise in COVID-19 case numbers compelled the Denver Emergency Operations Center (EOC) decision to go virtual and allow social distancing.

The Denver EOC intensified efforts to transition to virtual work after a State EOC individual tested positive for COVID-19. However, going virtual took longer than expected. Challenges included building IT platforms and developing tactical patience to transition slowly but still protect staff.

While the shift was successful, the process had coordination, communication, resource and capacity challenges. One such challenge was using EOC position-based email accounts and profiles in MS Teams to make communications centralized and consistent. To encourage their use, certain sections set up a specific MS Teams chat that was renamed with each day's date. It was used to share updates and track discussions and communications. While that was somewhat successful, the EOC also used city-issued employee email accounts to facilitate engagement. Another challenge was using devices that could handle necessary functions, and tools (like cameras or microphones) that required minimal troubleshooting and not using personal devices.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Formalize the virtual activation and operation processes.

Observation 30

Meetings and briefings followed the Denver Emergency Operations Center (EOC) Planning P process but were modified to adapt to this unique activation type and duration.

The Denver EOC Section Chiefs held a nightly call for information handoff and kept an MS OneNote log with information to pass on to the next shift. This became a record for each shift to read and prepare for the next shift. Each section had a different method of conducting their shift change. The entire EOC conducted a shift change brief that included an overview of the current EOC Action Plan. This was done once in the morning and once in the afternoon/evening. Even those not working the active shift listened to the briefings. No physical shift handoff took place. These briefs were essential to providing situational awareness. Each Denver EOC Section Chief provided an update and the Denver EOC Director concluded with final remarks.

Prior to the COVID-19 pandemic, the EOC's planning process or Planning P (See Figure 3 or Appendix D) included:

- An objectives meeting
- A strategy meeting
- A planning meeting in each 12-hour operational period
- Operations briefs to the entire EOC and JIC following each planning meeting and throughout the operational period
- An ad hoc meetings and rainbow meetings as necessary.

However, EOC leadership quickly realized that 24/7 operations for this type of long-duration emergency could not be maintained, so they moved to operating Monday through Saturday from 9:00 a.m. to 5:00 p.m. This meant insufficient time to hold all the typical meetings, therefore, the schedule eventually had to be modified again.

At the beginning of the Denver EOC activation, too many meetings were scheduled. Staff finished one meeting and moved directly into the next, while still trying to process information from the previous meeting. Some Section Chiefs decided to run meetings based on team composition, leadership and shift.

The strategy meeting was cancelled but was re-scheduled occasionally for special requirements or specific reasons. Staff felt that it was better to give people more time to accomplish tasks between meetings than to keep pulling them into unnecessary meetings.

Some staff felt the coordination meetings were beneficial because they provided access to decision-makers. It was difficult to determine how to communicate of operational decision implementation to the JIC.

Printing was a long process, so information was posted to the MS Teams chat instead. Participants then had information in advance and could make real-time comments. It was difficult to talk to people after a meeting and getting the Director's signature typically required an hour or two.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Continue to train on operational shift change briefings.
- Codify briefing and shift handoff process for non-24-hour activations.

Observation 31

Rainbow meetings were an ad hoc decision-making tool used by the Denver Emergency Operations Center (EOC) when a problem needed to be solved quickly and was outside the normal meeting schedule.

A rainbow meeting is an informal, unscheduled meeting designed to quickly bring together various EOC sections to make decisions and solve critical issues. Each section has a dedicated color and participants wear that colored vest during an activation, hence the term rainbow (refer to Figure 1 or Appendix B). While rainbow meetings were useful, they did not always include all sections, and decisions were made without all the right people in attendance. Unfortunately, one of the downsides of the rainbow meetings was that not all sections could participate all the time. The rainbow meetings were beneficial in helping other staff and sections understand what each EOC section's duties and responsibilities were.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- The EOC Coordinator should be brought into rainbow meetings to involve the right people in the decision-making process.
- Discuss the problems solved in rainbow meetings in regular scheduled EOC meetings to facilitate coordination and awareness.
- Integrate further training so that EOC staff completely consider all implications of a decision and include all appropriate EOC sections in the decision-making process.

Observation 32

Repurposing of roles in the Denver Emergency Operations Center (EOC) allowed better use of staff.

The Denver EOC Section Chiefs were encouraged to adjust the positions in their section as necessary. For example, the Denver EOC Logistics Section realized they could not conduct training during the emergency, so they repurposed certain roles and responsibilities to properly vet requests and orders. For instance, the EOC Logistics Scribe was repurposed and eventually called the Section Chief for a follow-up. This became part of the Logistic Section's process and they trained other Section Chiefs to do the same. A common EOC practice in any emergency activation where the situation is unclear or uncertain, the EOC Scribe is used to solve these types of problems.

The EOC Plans Section started the activation with most of their positions filled, but over time, made the decision to scale back the number of filled positions. An example of repurposing staff roles was to combine the EOC Scribe and EOC Situation Branch. Personnel worked together to share and communicate information, and staff operated successfully as one team. Planning meeting information was often passed directly to the EOC Advanced Planning Branch, as they were more knowledgeable and had the right information.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Document the guidance that staff need to have better awareness on what other sections do.
- Discuss the possibility of training or cross-training personnel.
- EOC Sections Chiefs need to develop processes to share staff among sections.

Situational Assessment

Core Capabilities: Intelligence and Information Sharing, Operational Coordination, Planning, Risk and Disaster Resilience Assessment, Situational Assessment

Observation 33

Technology needs to be better incorporated into Denver Emergency Operations Center (EOC) training and exercises.

Required EOC training was previously conducted in person. Technology was not used in training and exercises and was not part of any EOC processes until Denver EOC was required to be virtual during the COVID-19 response. Some staff members who were interviewed said if training on technology been incorporated earlier, the current COVID-19 activation might have encountered less friction and issues.

The first training priority for the Denver EOC is to work on the analog process first (i.e. paper, white boards, hardcopy maps, etc.) and then slowly add technology into the training process. The goal of orienting staff to work on analog processes provides for times when personnel cannot rely on technology. The staff must be able to perform their emergency functions without technology and must be able to use both analog and digital methods. Prior to COVID-19, the Denver EOC had no virtual process, but now it has a detailed approach toward creating a virtual operating environment. The program has also been updated to incorporate COVID-19 lessons learned.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Technology Services (TS) and Office of Emergency Management (OEM)

- Continue incorporating more technology in future training for Denver EOC staff.

Logistics and Supply Chain Management

Core Capabilities: Planning, Operational Coordination, Situational Assessment, Supply Chain Integrity and Security

Observation 34

Minimal availability of supplies from the Strategic National Stockpile (SNS) forced the Denver Emergency Operations Center (EOC) Logistics Section to execute contracts with outside venders to obtain necessary resources.

The SNS was depleted and was viewed as unreliable, which caused delays in responding to hospital's requests for critical supplies and resources. For instance, hospitals needed paralytic medications for their respirators, and it was difficult to inform hospitals whether the SNS could be a source for those supplies.

Because personal protective equipment (PPE) and other supplies could not be obtained from the SNS and other U.S. vendors, the city was compelled to look to overseas vendors to fulfill supply needs. Procurement challenges arose, such as setting up new vendors and dealing with foreign entities. For example, a new vendor request had one name on the W-9, but the bill arrived under a different name. Parent companies overseas requested payment up front when items were ordered instead of payment when the items are received, which is standard practice for the city. In general, the procurement system was not suited for an emergency of this scale.

To manage resource limitations, the Denver EOC staff worked with hospitals and first responders to collect data on projected needs and determine percentage allocations. Eventually, the Denver EOC Logistics Section sourced supplies based on requests and projections of anticipated needs. Denver Department of Public Health and Environment (DDPHE) compiled an inventory of needed items using an online form. Epidemiologists then reviewed the catalog to prioritize items and distribution. Once prioritized, the Denver EOC Logistics Section initiated the procurement process.

The Denver EOC Logistics Section had to be mindful of which items were ordered and paid for, which items had arrived and were the correct number of items received. Additional supply challenges at the federal level had local impacts. The city established relationships with vendors overseas to procure necessary items to fill the gap.

The Denver EOC Logistics Section had to adjust their procurement process to accommodate overseas orders and payment methods, some of which were payment upon delivery or payment up front, either 100% or 50%. Wire transfers to overseas countries, such as China, were outside the bounds of the normal protocols but necessary to procure supplies. The procurement philosophy was if we could find it, we bought it. Evaluations were conducted on leasing, renting or buying.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Department of General Services with support from Denver Department of Public Health and Environment (DDPHE) and Department of Finance (DOF)

- Develop a flexible procurement system that can adapt to challenging market conditions and supply chain issues.
- In the future, State and local Public Health Departments should continue working together and communicate expectations and forecast requirements ahead of time.
- Develop plans to enact or establish an emergency fund.
- Receipts for purchases and billing processes must be documented.
- Develop emergency procurement purchasing Standard Operating Procedures (SOPs) and quality measurements.
- Give multiple individuals delegation authority to process emergency procurement across agencies.

Observation 35

Due to vendor requirements for large orders, Denver partnered with smaller, neighboring jurisdictions to make joint orders.

As the supply chain for personal protective equipment (PPE) shrank, third party suppliers required substantial, minimum orders for PPE. Denver satisfied those requirements due to its fiscal resources, though smaller front-range jurisdictions had difficulty accommodating those supplier demands. In one instance, Denver engaged in a joint order to assist smaller jurisdictions with their PPE purchase.

RECOMMENDATIONS: BEST PRACTICES

Responsible Agency or Department: Department of General Services and Department of Finance (DOF)

- Continue sharing supplier information across jurisdictions during emergency situations.
- Continue to partner for joint emergency purchasing efforts, as appropriate.

Observation 36

Denver stored and transported supplies with available and repurposed city resources.

Once delivered, supplies were transported to a warehouse owned and operated by Denver Department of Transportation and Infrastructure (DOTI). The warehouse was used for businesses prior to COVID-19 but adapted its inventory management system for its repurposed use. From there, items were catalogued and sent to receiving partners according to prioritization. City agencies' supplies were directly transported to their designated locations, and partner resources were delivered to Denver Department of Public Health and Environment (DDPHE) for further distribution.

The Denver EOC Logistics Section monitored trends, supply types, weekly movements and customs processes while simultaneously determining who needed what resources. The lead time for some items was three to four weeks. The Denver EOC Logistics Section built a supply inventory to avoid operating on a transactional basis. An internal storeroom with bulk purchases was created to house resources, which were dispersed based on EOC Form 213RRs (resource request forms).

As the Denver EOC, PHE DOC and partners standardized the procurement process, the city built a stockpile and focused on providing resources for public agencies and programs.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Department of General Services, Denver Department of Transportation and Infrastructure (DOTI) and Department of Finance (DOF)

- Receipts for purchases and billing processes must be documented.

Observation 37

Due to new Denver Emergency Operations Center (EOC) staff and expanded stakeholder groups, issues with coordination and use of resources led to individuals not fully adhering to standards for the EOC Form 213RR (resource request) process.

Staff and sections had to deconflict multiple instances of duplicated efforts. The Denver EOC Mass Care Branch and the ad hoc Denver EOC Sheltering Section were making the same requests to Denver EOC Logistics Section. The Denver EOC Logistics Section discovered this and rectified it with management's help.

The Denver EOC Logistics Section encountered numerous duplicated 213RRs but used MS Teams and Denver EOC leadership to address this, including identifying duplicate 213RRs. The Denver EOC Logistics Section digitized their forms and a clear approval process in MS Teams.

Denver EOC job descriptions of staff working the response were not well developed, creating potential for duplication or lack of necessary staffing. A simple job sheet and roster was developed to allow people to take time off with other people coming in to provide relief.

Supply requests were not evaluated and were prioritized with little or no analysis or assessment provided (i.e., why are items needed or are any currently in stock?). Due to a lack of supply discipline, requests were filled, only to find out later the item(s) were no longer needed.

Sometimes staff became impatient and circumvented the actual procurement process to obtain an item deemed essential at that time, and sometimes these were not approved by the requestor's Section Chief.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM) with support from Department of General Services and Department of Finance (DOF)

- Formalize the resource request process and identify points at which to develop internal supply stocks.
- Streamline adherence to 213RR process.
- Document the approved procurement process to avoid shortfalls and purchasing unnecessary supplies.
- Develop training for the logistic procurement process for EOC staff.
- Document processes to vet supply requests.
- Develop a formalized demobilization process to reduce incurred costs of unused supplies.

Observation 38

Procurement challenges resulted from a lack of Denver Emergency Operations Center (EOC) coordination and changes in the State of Colorado's purchasing requirements.

The 213RR was the starting point for any supply request. 213RRs were recorded on an MS Excel spreadsheet to track progress on resources requested. The 213RR process also starts the internal analysis on supply interactions between municipalities, the State and federal agencies. The logistics sections tried to determine when they could and could not go to the state for resources. The challenge faced by Denver EOC was that once they figured out the necessary requirements to obtain support from the State, the requirements had changed.

One such challenge was obtaining test kits for the Pepsi Center testing operations. The State changed test center licensing to require that test kits be used only at a certified center, which the Pepsi Center was not. This State mandate was to prevent local jurisdictions from putting in their own requests for test kits. The Pepsi Center was later certified and made those requests through WebEOC without any Denver EOC oversight, which was a way to procure without going through the Denver EOC Logistic Section and caused confusion.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Department of General Services, Office of Emergency Management (OEM) and Department of Finance (DOF)

- Analyze all supply requests against short- and long-term activations.
- Coordinate with State agencies to encourage consistent resource request processes between local and State entities.

Observation 39

Due to limited experience and lack of licensing to procure controlled substance pharmaceuticals, the Denver Emergency Operations Center (EOC) established a partnership with the Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) to coordinate such procurements.

The Denver EOC Logistics Section did not have experience or proper licensing to procure pharmaceuticals at the beginning of the activation. They worked with public health representatives to match the source with the need. The PHE DOC had the knowledge and understanding of drug laws and similar issues. It was a logical step to make the PHE DOC responsible for this type of procurement.

As this type and level of procurement was novel to the Denver EOC, the public health leads in the Denver EOC were responsible for coordinating between the Denver EOC Logistics Section and the PHE DOC.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE) with support from Denver General Services

- Document the Denver EOC and PHE DOC's pharmaceutical procurement process and compliance guidance.
- Incorporate pharmaceutical procurement coordination between the Denver EOC and PHE DOC into the roles and responsibilities of the public health representatives in the Denver EOC.
- Train Denver EOC Logistics Section on basic guidance of procuring controlled pharmaceutical substances.

Observation 40

The Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) Logistic Section became overwhelmed by the large volume of phone calls from people wanting to donate or request supplies.

Early in the PHE DOC activation, the primary health care representative directed partners to contact emergency management responders using a specific phone number for supply and information requests. As needs grew, the number was further distributed by partners to their networks. Eventually, the health care representatives' phone lines were overwhelmed with growing requests. The high volume of calls and complicated requests led to coordination and communication challenges between representatives and partners. An additional complication was that non-city agencies also used this communication channel to request personal protective equipment (PPE). To handle such cases, PHE DOC established standard operating procedures (SOPs) in real-time to determine whether non-city agency requests should be handled as internal or external matters.

The PHE DOC's solution was to create a 24/7 call center to field information and supply requests, operated by Denver Department of Public Health and Environment staff. Twelve staff were on hand at the peak of incoming requests. This program is still operating at the time of this report, with former employees of the Denver Arts and Venues Agency working the call center. The Denver Arts and Venues Agency is responsible for operating events and activities in the region. These employees were trained on providing referrals between individuals and agencies. The call center also fielded calls transferred from 311 for specific topics, such as business owners seeking guidance on how to handle exposure cases.

The Denver EOC was aware of the call center. Any requests or questions were sent back to the EOC PHE branch in the Denver EOC or the appropriate hospital and health care representatives that could provide support.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE), Office of Emergency Management (OEM) and Department of Finance (DOF)

- Distinguish the resource request process among the city, the community and others.

Observation 41

Due to the high volume of requests from non-city agencies and citizen donations, the Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) developed a website for residents and businesses to submit and process supply requests and donations.

Citizens showed great community support in donating supplies to agencies and responders, particularly cleaning supplies. Since some of these supplies were not available for direct purchase in local markets, PHE DOC accepted donations. The PHE DOC developed a website to give citizens guidance on what items were needed and how to donate them. The website had a page that could be turned on when needed and provided guidance for the type and amount of donations. Before the website went live, the PHE DOC and the JIC conducted communications to the public on how to help, who to communicate with, and how to prepare their donations. The JIC created downloadable print material and media so individuals and businesses could specify their needs in donation requests.

Although the website did not scale well, it was instrumental for early processing of donations and created an expectations baseline for those requesting resources. In addition, the website was a conduit for establishing a donation process and was a source for PHE DOC to refer interested citizens and non-city partners.

RECOMMENDATIONS: BEST PRACTICES

Responsible Agency or Department: Denver Department of General Services, Denver Human Rights and Community Partnership (HRCP), Denver Technology Services (TS) and Department of Finance (DOF)

- Continue use of 311 website.
- Hold the 311 site in reserve in case it is needed for future activations.
- Codify and formalize the donation process to better determine community needs.
- Develop a citywide plan for the formalized donation process.

Continuity

Core Capabilities: Planning, Operational Coordination, Situational Assessment, Supply Chain Integrity and Security

Observation 42

Defined roles and responsibilities for Agency Continuity Coordinators (ACC) lacked consistency in most government departments. This led to inconsistent implementation and quality of agency and department Continuity of Operations Plans (COOPs).

The Denver Emergency Operations Center (EOC) has one position responsible for supporting continuity concerns for city agencies and for business continuity/private sector concerns based on the emergency. The role of the Denver EOC Continuity position is not clearly defined as it relates to the Citywide Continuity Program and Agency Continuity Coordinators (ACCs). This new EOC position was created in the year leading up to the COVID-19 activation but had not been widely circulated in general EOC staff.

ACC's individual mandate is to work within their agencies to address departmental issues. The ACCs need synchronize with their departmental leadership. They are not a cadre in the Denver EOC. Additionally, ACCs were assigned dual responsibilities. Some stated they were tasked with also being their department or agency COVID-19 Workplace Coordinator.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: All city agencies with support from Office of Emergency Management (OEM)

- Identify skills necessary to fill the ACC role in organizations and attach ACC job description to the Denver Continuity of Government (COG) Plan.
- Require Denver departments and agencies to codify and update ACC roles and responsibilities.
- Identify senior- or mid-level personnel who have influence and can implement plans to be ACCs.
- Define the EOC Continuity position and educate EOC staff on the purpose and responsibilities of the position.

Observation 43

Denver agencies' Continuity of Operations Plans (COOPs) were not designed for long-term activations and varied between departments and agencies.

The power outage incident at the Webb Building in March 2019 provided insight about what worked and what did not. Per the requirements of Executive Order 85, all agencies reporting under the Mayor's Office had COOPs in place, and all agency executives have the discretion of activating their agency's COOPs at any level, at any time. This is also true for several agencies and departments not under the Mayor in the city.

The Denver Continuity of Government (COG) Plan is a citywide plan activated by the Mayor, and while it was not officially activated, it was a guiding document for EOC leadership throughout the activation. The nature of COVID-19 and priorities of activation response required flexibility in COG application. The COG is due for revision in 2021.

People who were interviewed said they struggled with the prolonged nature of COVID-19. One participant remarked that the COOP did not account for the emergency's duration and how everyone responded to it. COOPs had not considered such a length of time for disruptions to essential functions and had not thoroughly developed planning in the COOP to address such extended disruptions.

Another interviewee from the Department of Motor Vehicles (DMV) stated the DMV closed on or around March 13 and activated their COOP, hoping to reopen in mid-April. The date then shifted to mid-May, and so on. No plans had addressed the possibility that agencies and departments would be closed for such a long period of time.

Other participants took the opportunity to activate their COOP before the city did on March 6, 2020, because they determined that the COVID-19 pandemic posed a hazard to some staff who fell into a high-risk category.

Some participants were unfamiliar with their department or agency's COOP. Those that did review their COOP admitted those plans were designed for short durations, were not meant for this type of long-term incident and were tailored more toward a natural disaster.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: All Denver departments and Office of Emergency Management (OEM)

- Denver agencies should develop COOPs to operate beyond one month with OEM providing guidance and assistance.
- Departments and agencies should update, exercise and inspect COOP to support each agency's responsibilities listed in the Denver Emergency Operations Plan (EOP).
- Confirm agencies design their COOPs specific to their departments or agencies requirements.

Observation 44

Transitioning from a physical to a virtual work environment presented challenges for the city agencies and staff.

City leadership wanted personnel who could work from home do so. Staff could take the necessary equipment home to continue to work. Leadership found it hard to track the equipment that was removed from offices.

A “digital divide" was identified, not only with customers but with staff as well. Staff who did not have access to the internet, hotspots or computers struggled to work in a virtual environment.

Once everyone was working from home, planning centered around the staff and who might have to go back to the office. Procuring personal protective equipment (PPE) and other safety items became a priority but was difficult due to initial shortages.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: All Denver departments and Denver Office of Human Resources (OHR)

- Encourage departments and agencies to provide staff with specific equipment lists to fulfill specific or mission related capabilities.
- Continue to formalize and document available city-owned assets for personnel to use in their telework location.

Community Recovery and Economic Resilience

Core Capabilities: Community Resilience, Infrastructure Systems, Long-term Vulnerability Reduction, Mass Care Services, Risk and Disaster Resilience Assessment

Observation 45

Pandemic recovery was a focus early in the response, leading to the development of a Recovery Action Plan.

On March 13, the recovery planning process began in response to the COVID-19 pandemic. On March 18, initial plans focusing on recovery objectives and tasks were drafted and submitted to the Office of Emergency Management (OEM) Advisor.

On April 2, the Denver Emergency Operations Center (EOC) Plans Section Chief asked the Denver EOC Recovery Branch what they should be doing, citing other state's recovery efforts. The next four weeks were spent developing the Recovery Strategy and the Recovery Action Plan. On April 29, these two documents were presented to the Mayor and all Executive Directors of Denver. The Mayor briefed the Recovery Strategy during a press conference on May 4.

Agencies were required to identify employees to be part of the Long-Term Recovery Committee (LTRC) and associated working groups no later than May 14. Working group chairs scheduled their first meetings during the week of May 18 and have continued to meet regularly since May 26.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: City of Denver Mayor's Office with Office of Emergency Management (OEM) support

- Codify the process to quickly appoint chairs to the LTRC to quickly transition to recovery.
- Pre-identify likely individuals to serve as LTRC chairs to quickly transition to recovery.
- Document the LTRC process for future long-term recovery actions.
- Develop qualifications and role descriptions for those serving as LTRC chairs.

Public Health Emergencies

Core Capabilities: Fatality Management Services, Long-term Vulnerability Reduction, Physical Protection Measures, Public Information and Warning, Environmental Response/Health and Safety, Screening, Search and Detention

Observation 46

COVID-19 mobile testing capabilities were created to provide services to underserved populations.

A community testing site was considered a new approach and the Pepsi Center was a key component with approximately 2,000 tests conducted per day. The Pepsi Center collected 32,500 tests over the first two months of operation (May-June 2020). However, the Pepsi Center was not the only testing provided by the City. Denver Department of Public Health and Environment (DDPHE) at-home testing services collected 119 tests in Denver resident's homes, while the pop-testing team collected an additional 2,200 tests at shelters, congregate housing facilities, apartments, and other communities.

People coming to the Pepsi Center were those who had easy access to the highway and could drive to the center for testing. Historically underserved and underrepresented communities, such as those in Northeast Denver, had to drive over 45 minutes to the center. This meant not many people from that part of Denver were being tested. When testing at the Pepsi Center was discontinued, efforts were made to redeploy resources to underserved communities and provide access for those who could not get to the main testing sites. More tests were made available through a community-based approach. The DDPHE and Denver Public Health (DPH) conducted mobile testing to help underserved populations. This increased overall access and should be used as a future approach to support equity.

Figure 11: Denver Pepsi Center Testing Site

A ZIP code assessment of the city determined that higher rates of COVID-19 were occurring where testing sites were not located nearby. In these areas, DDPHE deployed teams of EMTs and Fire Department volunteers to stand up mobile testing sites and administer tests. Test results were translated into several different languages, printed on site and handed to person(s) tested.

Altogether, Denver's COVID-19 testing strategy set the standard in the region and was considered unprecedented in the State of Colorado. Recognizing the need early for historically underserved populations, the mobile testing efforts reached the most vulnerable in Denver at a time when access to testing was difficult for many in the state.

RECOMMENDATIONS: BEST PRACTICES

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE)

- Codify and formalize the community-based mobile testing process.
- Continue use of linguists for handout test results to those people who do not speak English.
- Define mobile testing supervisory roles.
- Continue using tools and processes to assess pandemic spread and where to deploy mobile resources.

Observation 47

Denver Department of Public Health and Environment (DDPHE) established a contact tracing process.

Denver has a city public health arm with contact tracing capabilities, trained staff and infrastructure. Unfortunately, City Public Health did not have those same contact tracing capabilities, did not receive updated information on contact tracing and was unable to maintain situational awareness on contact tracing overall. Eventually, negotiations addressed case investigations, contact tracing and who would be responsible.

When it came to knowledge management of contact tracing, a DDPHE public health dashboard was used to developed two reports: one analyzed the total number of deaths and the other reported contact tracing. These two reports were never compiled into one. No single place documented a person’s test, case investigation and death certificate. The data was never compiled into a single record and it was hard to identify who was working on what. At this time, Denver is working to centralize their dashboards and a contact tracing process has been developed.

Denver Public Health (DPH) and DDPHE successfully developed and implemented a simple tool to conduct COVID-19 contact tracing and case investigations (interviews of persons infected and any close contact information). The process was:

1. Suspected cases were tested.
2. Positive test results were entered into the state's system.
3. Test result data was downloaded by DPH and cases were contacted by DPH telephone investigators.
4. Contacts identified during case investigation were forwarded to DDPHE for contact tracing.

Initially contact tracers were volunteers were either retired department or safety personnel. As time progressed, redeployed city employees, including DDPHE staff, executed the contact tracing mission.

When the DPH lists arrived, tracers began making phone calls, with staff oversight. Text and email were also used to make contact since some people do not answer their phone if they do not know who is calling. DDPHE tracers identified themselves, explained why they were contacting them and how to call them back. An information packet in several different languages and containing next steps was sent to suspected infectious people. The packet contained basic COVID-19 information, additional resources such as food and PPE, and a callback number for any additional questions.

Positives and negatives were associated with the organizational structure between DPH and DDPHE. On the positive side, the situation allowed access to resources normally not available, such as doctors and epidemiologists. On the negative side, and also the biggest challenge, was that DPH is a private entity subcontracted to the city. In many instances DPH had to be consulted for major medical decisions, which slowed the process.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE)

- Organizational structure between DPH and DDPHE was not conducive to public health operations in accurately conducting contact tracing operations.
- Public health activities should be consolidated under the city authority.
- Identify steps necessary to merge both organizations.

Observation 48

Denver Department of Public Health and Environment (DDPHE) had approximately 70% of their personnel focused on COVID-19 response. The other 30% were required to remain in key positions.

The DDPHE redeployed 70% of their staff to focus on COVID-19. This was due to specialized personnel having to continue their normal roles and responsibilities. For example, the medical examiner could not be removed from normal duties but performed an essential COVID-19 function because of pandemic-related deaths.

Animal shelters were impacted because numerous people did not reclaim their pets. People were concerned or afraid to pick up their pets because they had been roaming around the community and could have contracted COVID-19.

RECOMMENDATIONS: BEST PRACTICES

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE) with support from Denver Office of Human Resources (OHR)

- Continue identifying mission-critical positions and personnel who need to continue working.
- Define roles and responsibilities and qualifications of mission-critical positions.
- Codify key positions in department and agency positions into continuity plans.

Observation 49

The bifurcated public health structure between Denver Public Health (DPH) and Denver Department of Public Health and Environment (DDPHE) was inefficient in a large-scale response, ultimately slowing the pandemic response due to significant coordination and communication challenges.

Until four years ago, Denver Health and Denver Department of Public Health and Environment were independent recipients of grants. Both had separate emergency operations plans (EOPs) and both had established their own Department Operations Centers (DOCs). In the last two years, the two organizations were merged, with funding appropriated to the city. A joint DOC was established, with a full concept of operations and a unified EOP deploying responsibilities for each organization. This partnership was tested in the summer of 2019 in response to a severe Hepatitis A outbreak in the Denver metropolitan area. It was the only opportunity to work together prior to the COVID-19 pandemic.

The COVID-19 response had several key friction points and times of confusion. In any large organization, there is an initial period of confusion during an emergency, but Denver's public health and emergency response structure causes continued confusion and additional work and requires coordination to avoid risks and errors.

Challenges were also presented by the two-organization incident command structure at the operational level. Because the two teams were not co-located or operationally integrated, visibility was limited on some public health response functions which, at times, impacted emergency response. Problems resulted from technology and security incompatibilities, as well as cultural differences in decision-making, which impacted teams. These issues resulted in impacts to outbreak response, surge planning and unity and clarity when interfacing with external partners. Both organizations have taken extensive measures to work through these issues when they arise.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE)

- Hire medical specialists, epidemiologists, and data analysts to work directly for the city. Consider integrating programs and establish a public health and emergency response structure that facilitates consistency while limiting confusion, duplication, and risk through error.

Observation 50

The public health response to COVID-19 strained resources and finances across the Denver area.

Testing sites were serving not only people from Denver, but also people from throughout Colorado. Additionally, persons experiencing homelessness were arriving from jurisdictions outside Denver. Testing and sheltering personnel increases caused resource shortages. The burden of regional costs was raised to Colorado state officials in a request for additional financial support. The State provided financial assistance for some parts of Denver's service provision.

In Denver, the response to COVID-19 was not just a public health response, it involved many city agencies at multiple levels. The citywide response supported and provided services for the whole region, but insufficient funding directly impacted other operational and city budgets. Money had to be reallocated from other departments and agencies across the city. Some agencies were unable to afford the financial impact. The State eventually stepped forward by turning the Colorado Convention Center into an alternate care site and provided National Guard resources to support shortages at permanently established homeless shelters, while Denver managed all operations at newly created auxiliary sites.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE), Department of Finance (DOF), and Office of Emergency Management (OEM)

- Improve coordination with the State for funding requirements to prevent overexpenditure of city resources when the city supports response outside of its jurisdiction.
- Develop a formal agreement to document processes and requirements to outline how to operate regional assets and provide funding and resources for future activations.

Information Technology

Core Capabilities: Cybersecurity, Intelligence and Information Sharing, Long-term Vulnerability Reduction, Operational Communications, Operational Coordination

Observation 51

Denver Technology Services (TS) and the Denver Emergency Operations Center (EOC) Information Section were thorough in rolling out Microsoft (MS) Teams and other emerging technologies. This allowed the successful transition to a virtual environment and continuation of Denver's emergency response to COVID-19.

Denver EOC personnel used available technologies to continue operations and safeguard personnel. The Denver EOC Information Section were deliberate in technical and digital applications, which supported the Denver EOC transition to a virtual environment.

With no formal training, the Denver TS and Denver EOC Information Section had to review a 65-page user manual to educate themselves on MS Teams integration and collaboration software. Once completed, Denver TS trained over 300 Denver EOC personnel on MS Teams using live sessions, job aids and one-on-one training. Due to the nature of the activation, this took a considerable amount of time and effort. This deliberate and targeted training approach helped facilitate the movement of the Denver EOC staff to a virtual activation. It further allowed the development of digital systems and processes to enable Denver EOC personnel to continue their emergency support functions in a virtual environment.

The Denver EOC Information Section established an MS SharePoint site with folders and files to store documents. Steps were taken to preserve vital information: making files read-only, appending archive to the site name and compressing files, making them easier to share over the internet. The goal was to have everything contained on MS SharePoint. Paper forms were digitized, and analog Denver EOC status boards were made into web-based dashboards.

The virtual Denver EOC status boards and dashboards were documented and saved for use in another activation. The dashboards are fully automated with scripts for redundancy, so data is always available for every type of activation. The Denver EOC Form 213RR (resource request forms) were difficult to digitize because of multiple updates, causing the staff to fall behind on other digitization. MS Visio was used to map the digital process and to visualize the coordination. At this writing, all MS SharePoint processes, and digital libraries are being documented and shared.

One specific challenge involved technology changes and approval process development. The Denver EOC Information Section developed a strategy allowing one person to approve changes, obtain the proper approval and confirm the requested change.

The Denver EOC Information Section stated they had to train Denver EOC staff on how to submit a technology request with the proper level of detail and priority. Previously, everything was done all at

once because no digital request process was in place. During Denver OEM regular governance meetings, requests were brought forward for leadership discussion and leadership decided to either request additional information or to move the issue forward for action.

A process improvement specialist participated in the Denver TS and Denver EOC Information Section After-Action Report (AAR) interview. A process improvement specialist provides retraining and facilitates process improvements, teaches people to work more effectively and efficiently.

The Denver EOC Information Section spent a considerable amount of time on training and videos on how to use virtual tools. A quick-reference guide provided points of contact, should staff need assistance or have questions. A Denver TS staff member was always available to assist with MS Teams and provide additional real-time training. The trainer position was retained and made available throughout the entire activation.

An efficient user experience was developed using MS Teams, MS SharePoint and NINTEX to quickly provide forms to users. Twenty-two forms were digitized from analog documents and were accessible within a week. The Denver TS did their best to make the digital forms closely resemble the paper forms to improve adoption through familiarity.

A list of forms is available in MS Teams and in MS SharePoint to provide quick access to users as they navigate their daily tasks. The Denver TS used MS Power BI to generate dashboards to easily provide summarized form content to all levels of the Denver EOC. MS SharePoint workflows were used to send notifications and automate moving documents through each form's unique process flow. This allowed forms to be communicated quickly, reviewed, approved and executed regardless of whether the necessary resources were in the physical or virtual Denver EOC.

Best of all, this functionality was available for mobile devices. This allow people to work in the field or at different locations as the city's COVID-19 response evolved with shelters, testing sites, personal protective equipment (PPE) storage and other activities dispersed across various municipal locations.

The Denver TS and Denver EOC Information Section also developed an internal operating procedure to document lessons learned, process flows, activation and demobilizations procedures and associated training materials on how to use digital products and operate virtually.

RECOMMENDATIONS: BEST PRACTICES

Responsible Agency or Department: Denver Technology Services (TS)

- Capture lessons learned and codify into plans, policies, and guidance.
- Develop a targeted and robust training and change management strategy to support initial technology rollout and continuous innovation.

- Define and map the transition to a virtual activation process, sustainment of virtual operations and train personnel on these processes.
- Incorporate Denver TS best practices into the Denver EOC training courses to improve the technology expertise of all Denver EOC members, regardless of role.
- Develop a cadence of continuous technology innovations for virtual Denver EOC processes.

Observation 52

Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) staff and sections were unable to access MS Teams and other shared files early in the activation. This led to miscommunications, lack of situational awareness and loss of productivity.

Early in the response, the PHE DOC staff and Denver Technology Services (TS) had some miscommunication as to what technology platforms could and could not be used in the PHE DOC. This led to confusion with some PHE DOC sections and personnel without access MS Teams. If articulated early, access could have contributed to staff performing their duties more efficiently. Not being on the same platform left some staff operating blindly. Some staff had no visibility as to what was happening regarding public information. When using MS Teams, some staff did not have access to certain files and folders to which they should have had access. This led to re-creating files and folders.

Initially, Denver Public Health (DPH) did not use MS Teams or Google due to security concerns. As part of the PHE DOC and Denver EOC operations, this caused serious coordination issues.

RECOMMENDATIONS: BEST PRACTICES AND LESSONS LEARNED

Responsible Agency or Department: Denver Department of Public Health and Environment (DDPHE) and Denver Technology Services (TS)

- Develop a formalized process when setting up MS Teams to include the Denver Joint Information Center (JIC) and PHE DOC to facilitate operational collaboration.

Observation 53

While Denver Technology Services (TS) and the Denver Emergency Operations Center (EOC) Information Section had an existing backup communication plan, the documentation and dissemination of the plan was not consistent among response teams.

Open and accessible communication is a priority for any emergency response. Denver TS and the Denver EOC Information Section have a communications plan in the event existing communication channels are unavailable. However, this plan was not widely circulated to all Denver EOC sections, citywide departments or agencies and response personnel. It is also unclear whether the plan has

been exercised and validated. Should a tool like MS Teams be inaccessible, the only thing staff knew to do was to physically return to the Denver EOC to complete their work and receive directives.

One such backup measure accounts for ensuring communications should the Denver EOC location lose power. In this event, personnel for Denver TS and Denver EOC Information Section are to be deployed to Wi-Fi hotspot locations throughout the city. Additionally, home Wi-Fi or cell phone hotspot capabilities can be used for staff to access content on MS SharePoint. If staff can access the internet, they can access Denver EOC content. MS SharePoint, NINTEX forms and MS Power BI dashboards must be accessible by cell phones as well as laptops. If all virtual capabilities are lost, the Denver EOC has a small cache of satellite phones, land mobile radios and amateur radios to be used as an alternate means of communication.

RECOMMENDATIONS: BEST PRACTICES

Responsible Agency or Department: Denver Technology Services (TS)

- Codify backup communication plans into best practices for plans, policies, and guidance.

Observation 54

The Denver Emergency Operations Center (EOC) Information Section faced several challenges when transitioning to a virtual environment because of late involvement in discussions and decision-making.

Denver TS must be involved earlier in the decision to move the Denver EOC from in-person to a virtual operating environment. This would have allowed Denver TS and the Denver EOC Information Section to be better prepared for the move, identify what could and could not be accomplished, notify key personnel and identify necessary resources to accomplish the change in mission. Being involved earlier in the decision to go virtual would have prevented major issues, answered key questions and resource needs appropriately. Instead, the Denver TS and Denver EOC Information Section had to deal with issues in the middle of the move to virtual.

The Denver TS and the Denver EOC Information Section stressed the importance of early notification and being involved in the virtual operations decision-making process. The Denver TS and the Denver EOC Information Section felt that earlier involvement would have allowed them to be more prepared for the transition from a physical activation to a virtual activation instead of having to activate additional support personnel and surge staff.

The Denver Office of Emergency Management (OEM) leadership assessed that Denver TS and Denver EOC Information Section were brought in during the initial activation to be thoroughly involved in the efforts to stand up digital services. Leadership and management did reach out to technical services on several occasions, but it is possible that miscommunications occurred.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Denver Technology Services (TS)

- Personnel should be identified so everyone is clear on who should be included in the decision-making process.
- When referring to IT support, more specific information is needed on what is being requested, i.e., phones, internet services, MS SharePoint, etc.
- Identify who and what is needed for a response so that the right people show up at the right time and place, with the right equipment.
- Develop a roster to identify specific personnel with assigned roles and responsibilities to fill Denver TS roles in the Denver EOC.

Management

Core Capabilities: Operational Communications, Operational Coordination

Observation 55

As the pandemic response became a long-term activation, having two Denver Office of Emergency Management (OEM) Advisors on shift led to redundancies and limited impact of other roles.

The majority of Denver Emergency Operations Center (EOC) positions were virtual, which exacerbated the issue of the Denver EOC Coordinators being underused. The OEM staff members who filled the Denver EOC Coordinator role would have been better served in other roles while in a virtual/hybrid environment. In a short-duration incident, this is not an issue, but with the COVID-19 activation, at times staff were in the Denver EOC doing their jobs (four days on).

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: Office of Emergency Management (OEM)

- Confirm one Denver EOC Coordinator and one Denver EOC Advisor per shift as per the Denver EOC staffing plan.
- Consider using Denver OEM staff in different ways.

Observation 56

The City of Denver did not have broad emergency powers and could not waive certain permit requirements when building alternate care sites to assist individuals experiencing homelessness.

The COVID-19 pandemic response required the City of Denver to use multiple emergency provisions in Denver Revised Municipal Code and Colorado Revised Statute. However, some actions could have been expedited with the assistance of more comprehensive emergency code provisions.

RECOMMENDATIONS: LESSONS LEARNED

Responsible Agency or Department: City Attorney's Office with support from the Office of Emergency Management (OEM)

- Consider reviewing the Denver's Municipal Code to confirm adequate emergency powers exist to address future emergencies.

Conclusion

On March 2, 2020, Denver began establishing an emergency response structure to protect and provide for its residents in the COVID-19 pandemic. By March 12, the Denver Emergency Operations Center (EOC) and the Denver Department of Public Health and Environment (PHE) Department Operations Center (DOC) were working together to meet unprecedented challenges. The city's leadership, community partners, health care workers, supporting staff and emergency response partners coordinated together on procuring lifesaving equipment, supporting the homeless population and establishing guidelines for operating in 'the new normal.'

Prior to the COVID-19 pandemic, the Denver EOC sections and personnel conducted training exercises and real-world operations, but only for short periods of time. COVID-19 compelled Denver to operate well beyond previous emergency timeframes. The longer the pandemic lasted, the more complicated it became to maintain the Denver EOC, the PHE DOC and other supporting operational and public safety structures.

The observations and recommendations in this report identify, highlight and document the lessons learned during this unprecedented incident. This report is a resource for Denver agencies, departments and offices, as well as other jurisdictions across the nation in their continued efforts to improve response capabilities related to COVID-19. The best practices also serve to inform Denver's future preparedness and response investments.

This report is dedicated to the victims of COVID-19 and to the many health care and custodial workers, emergency response professionals, staff and volunteers who strive tirelessly to protect the health and wellness of those who are afflicted. The COVID-19 response is not over. For many with families, friends and colleagues who have directly or indirectly dealt with COVID-19, recovery may be far down the road. The communities in Denver, as well as communities across the nation, remain committed to helping those affected to recover and rebuild.

Appendix A: Abbreviations and Acronyms

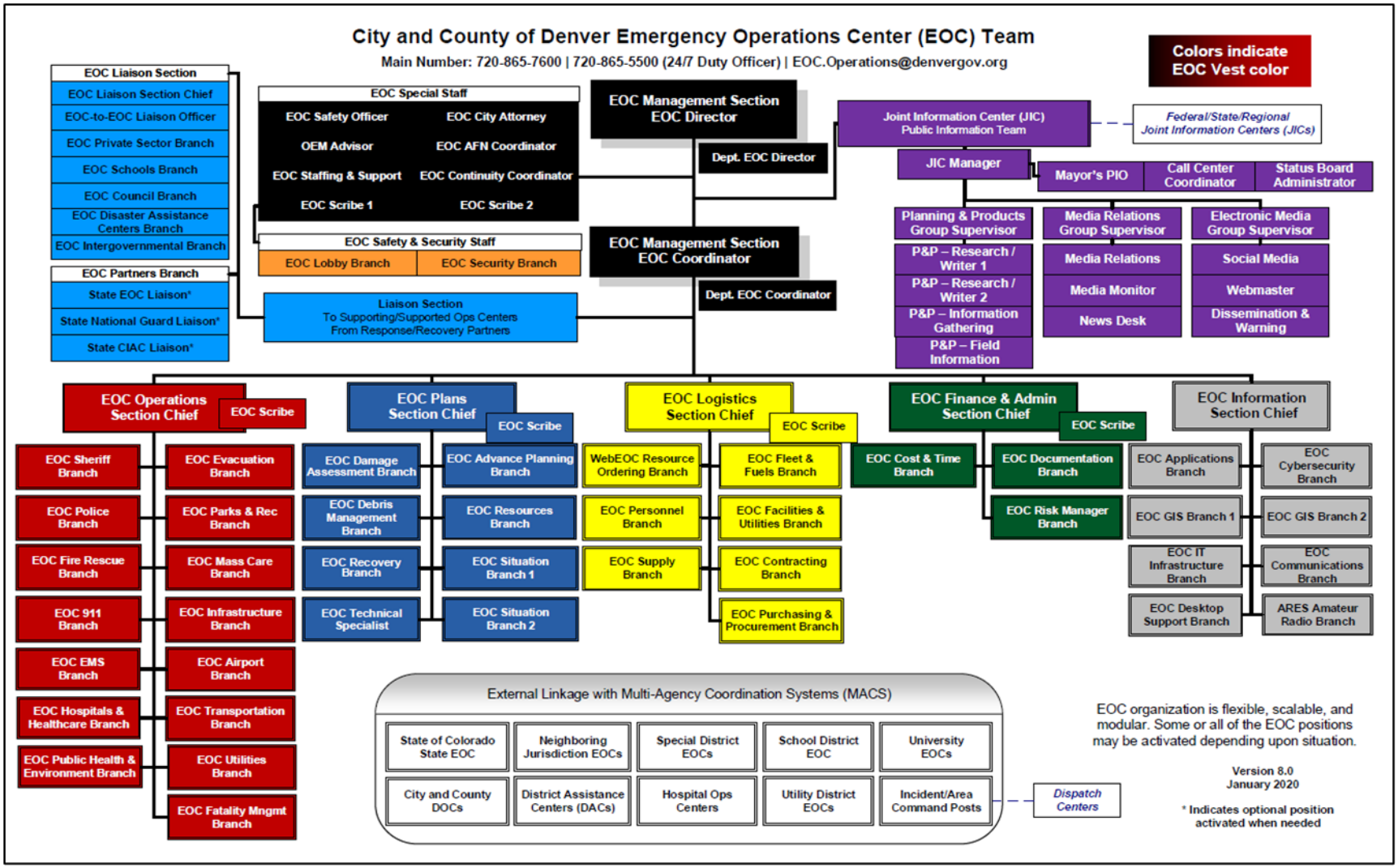
ADA	Americans with Disabilities Act
AFN	Access and functional needs
AL	EOC Activation Level
BAR	BioWatch Actionable Result
BC	Business continuity
CAO	City Attorney's Office
CAMEO	Computer Aided Management of Emergency Operations (free software program from EPA)
CBO	Community-based organization
CCB	City and County Building
CIAC	Colorado Information Analysis Center
CIRs	Critical information requirements
COG	Continuity of Government
CONG	Colorado National Guard
COOP	Continuity of Operations (Plan)
COP	Common operating picture
COVOAD	Colorado Voluntary Organization Active in Disasters
CSA	Combined Statistical Area (Denver metro plus)
CST	Civil Support Team (of the Colorado National Guard)
DDPHE	Denver Department of Public Health and Environment
DFD	Denver Fire Department
DHMC	Denver Health Medical Center

DHS	Denver Department of Human Services
DMAT	Disaster Medical Assistance Team
DMORT	Disaster Mortuary Operations Response Team
DOC	Departmental Operations Center
DPD	Denver Police Department
DPH	Denver Public Health (part of Denver Health System)
DOTI	Denver Office of Transportation and Infrastructure
EAP	EOC Action Plan
EAS	Emergency Alert System
EM	Emergency management
EMAC	Emergency Management Assistance Compact
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPI	Emergency Public Information
EPN	Emergency Public Notification
EVC	Emergency Volunteer Center
FAC	Family Assistance Center
FBO	Faith-based organization
FEMA	Federal Emergency Management Agency
GETS	Government Emergency Telecommunications Service
GIS	Geographic Information System
GPS	Global Positioning System
ICE	U.S. Immigration and Customs Enforcement

ICP	Incident command post
ICS	Incident command system
IGA	Intergovernmental agreement
IMAT	Incident Management Assistance Team
IMT	Incident Management Team
IP	Improvement plan (for training, exercises, activations)
IPAWS	Integrated Public Alert and Warning System
JIC	Joint Information Center
JIS	Joint Information System
LEPC	Local Emergency Planning Committee
LHMP	Local Hazard Mitigation Plan
LSA	Logistics staging area
LTRC	Long-Term Recovery Committee
MAA	Mutual Aid Agreement
MAC (Truck)	Multi-Agency Communications Truck
MACS	Multi-Agency Coordination System
MSA	Metropolitan Statistical Area (Denver metro)
NCR	North Central All-Hazards EM Region (the Region)
NDMS	National Disaster Medical System
NGO	Nongovernmental organization
NIMS	National Incident Management System
OEM	Office of Emergency Management
OP	Operational period (12 hours for EOC)
PA	Public assistance

PAR	Protective Action Recommendation
PHE DOC	Denver Department of Public Health and Environment, Department Operations Center
PIO	Public Information Officer
POD	Point of Distribution and/or Dispensing (C – Commodities, P – Pharmaceuticals)
PSAP	Public Safety Answering Point (911 Call Center)
QRG	Quick Reference Guide
RETAC	Regional Emergency Medical and Trauma Services Advisory Council
RNO	Registered Neighborhood Organization
RRCC	Regional Response (or Resource) Coordination Center
RSS	Receipt, Stage and Store (of the Strategic Natl Stockpile)
SIP	Shelter-in-place
SNS	Strategic National Stockpile
SOP	Standard operating procedure
TS	Denver Office of Technology Services
UC	Unified commander
UCP	Unified command post
VOAD	Voluntary Organizations Active in Disasters
VoIP	Voice over Internet Protocol
WEA	Wireless Emergency Alerts
WebEOC	Software program for EOC-to-EOC information sharing and resource requests
WPS	Wireless Priority Service
XO	Executive Order

Appendix B: Denver EOC Organizational Chart



Appendix B1: City and County of Denver EOC Team

Accessible Organizational Chart

EOC MANAGEMENT SECTION EOC DIRECTOR (BLACK VEST)

DEPARTMENT EOC DIRECTOR (BLACK VEST)

- EOC Special Staff (Black Vest):
  - EOC Safety Officer
  - OEM Advisor
  - EOC Staffing & Support
  - EOC Scribe 1
  - EOC City Attorney
  - EOC AFN Coordinator
  - EOC Continuity Coordinator
  - EOC Scribe 2
- EOC Management Section EOC Coordinator (Black Vest)
- Department EOC Coordinator (Black Vest)

EOC SAFETY AND SECURITY STAFF (ORANGE VEST):

- EOC Lobby Branch
- EOC Security Branch

LIAISON SECTION (TEAL VEST): TO SUPPORTING/SUPPORTED OPS CENTERS FROM RESPONSE/RECOVERY PARTNERS

- EOC Liaison Section:
  - EOC Liaison Section Chief
  - EOC-to-EOC Liaison Officer
  - EOC Private Sector Branch
  - EOC Schools Branch
  - EOC Council Branch
  - EOC Disaster Assistance Centers Branch
  - EOC Intergovernmental Branch
- EOC Partners Branch:
  - State EOC Liaison*
  - State National Guard Liaison*

- State CIAC Liaison*

JOINT INFORMATION CENTER (JIC) PUBLIC INFORMATION TEAM (FEDERAL / STATE / REGIONAL JOINT INFORMATION CENTERS (JICS) (PURPLE VEST):

JIC MANAGER:

- Mayor's PIO
- Call Center Coordinator
- Status Board Administrator
- Planning & Products Group Supervisor
  - P&P Research/Writer 1
  - P&P Research/Writer 2
  - P&P Information Gathering
  - P&P Field Information
- Media Relations Group Supervisor
  - Media Relations
  - Media Monitor
  - News Desk
- Electronic Media Group Supervisor:
  - Social Media
  - Webmaster
  - Dissemination & Warning

EOC OPERATIONS SECTION CHIEF (RED VEST):

- EOC Scribe
- EOC Sheriff Branch
- EOC Police Branch
- EOC Fire Rescue Branch
- EOC 911 Branch
- EOC EMS Branch
- EOC Hospitals & Healthcare Branch
- EOC Public Health & Environment Branch
- EOC Evacuation Branch
- EOC Parks & Rec Branch
- EOC Mass Care Branch
- EOC Infrastructure Branch

- EOC Airport Branch
- EOC Transportation Branch
- EOC Utilities Branch
- EOC Fatality Management Branch

EOC PLANS SECTION CHIEF (BLUE VEST):

- EOC Scribe
- EOC Damage Assessment Branch
- EOC Debris Management Branch
- EOC Recovery Branch
- EOC Technical Specialist
- EOC Advance Planning Branch
- EOC Resources Branch
- EOC Situation Branch 1
- EOC Situation Branch 2

EOC LOGISTICS SECTION CHIEF (YELLOW VEST):

- EOC Scribe
- WebEOC Resource Ordering Branch
- EOC Personnel Branch
- EOC Supply Branch
- EOC Fleet & Fuels Branch
- EOC Facilities & Utilities Branch
- EOC Contracting Branch
- EOC Purchasing & Procurement Branch

EOC FINANCE & ADMIN SECTION CHIEF (GREEN VEST):

- EOC Scribe
- EOC Cost & Time Branch
- EOC Documentation Branch
- EOC Risk Manager Branch

EOC INFORMATION SECTION CHIEF (GRAY VEST):

- EOC Application Branch

- EOC GIS Branch 1
- EOC IT Infrastructure Branch
- EOC Desktop Support Branch
- EOC Cybersecurity Branch
- EOC GIS Branch 2
- EOC Communications Branch
- AREA Amateur Radio Branch

EXTERNAL LINKAGE WITH MULTI-AGENCY COORDINATION SYSTEMS (MACS) (WHITE VEST):

- State of Colorado State EOC
- City and County DOCs
- Neighboring Jurisdiction EOCs
- District Assistance Centers (DACs)
- Special District EOC
- Hospital Ops Centers
- School District EOC
- Utility District EOC
- University EOCs
- Incidental/Area Command Posts
- Dispatch Centers

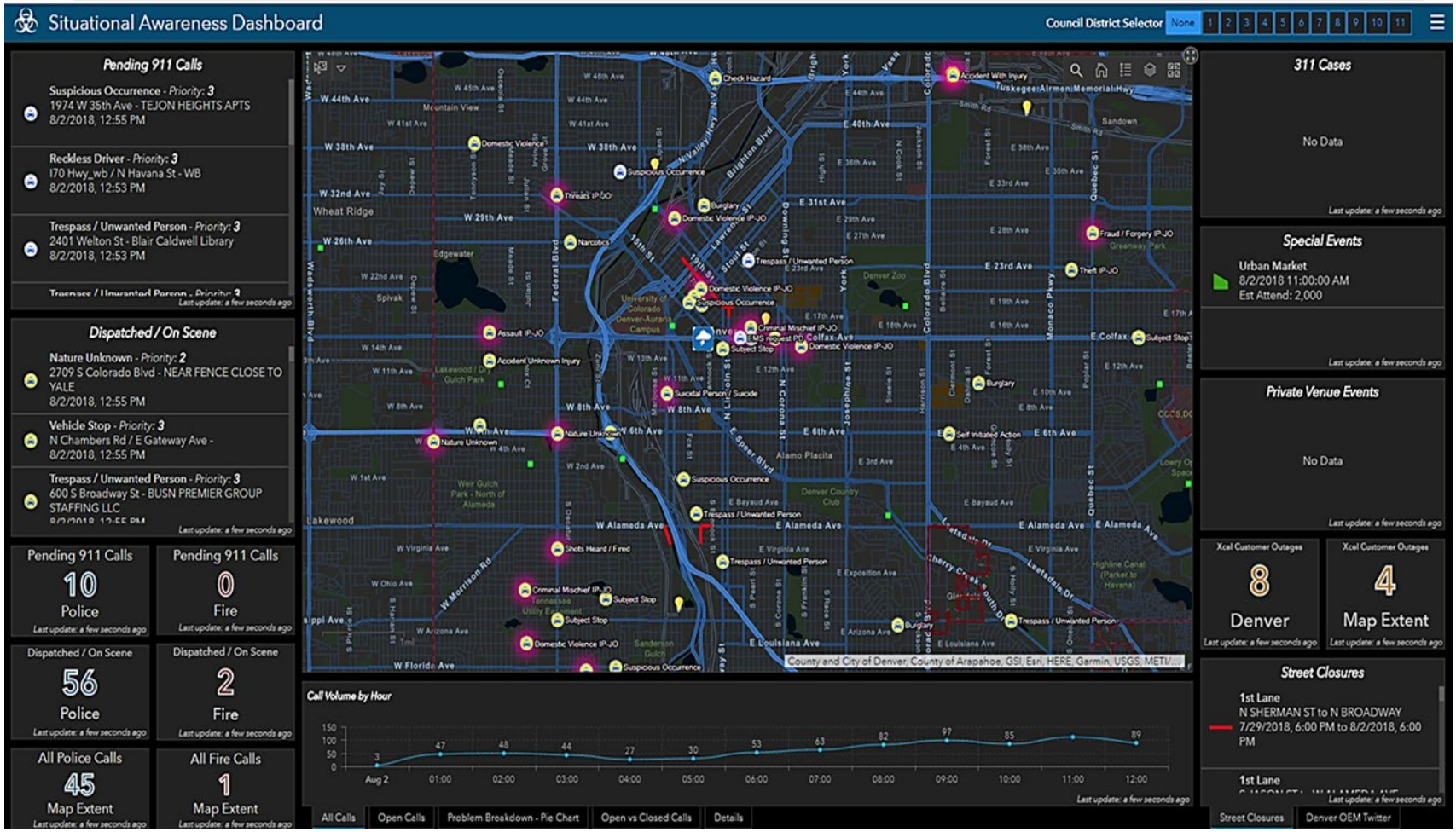
EOC ORGANIZATION IS FLEXIBLE, SCALABLE, AND MODULAR. SOME OR ALL OF THE EOC POSITIONS MAY BE ACTIVATED DEPENDING UPON SITUATION.

VERSION 8.0

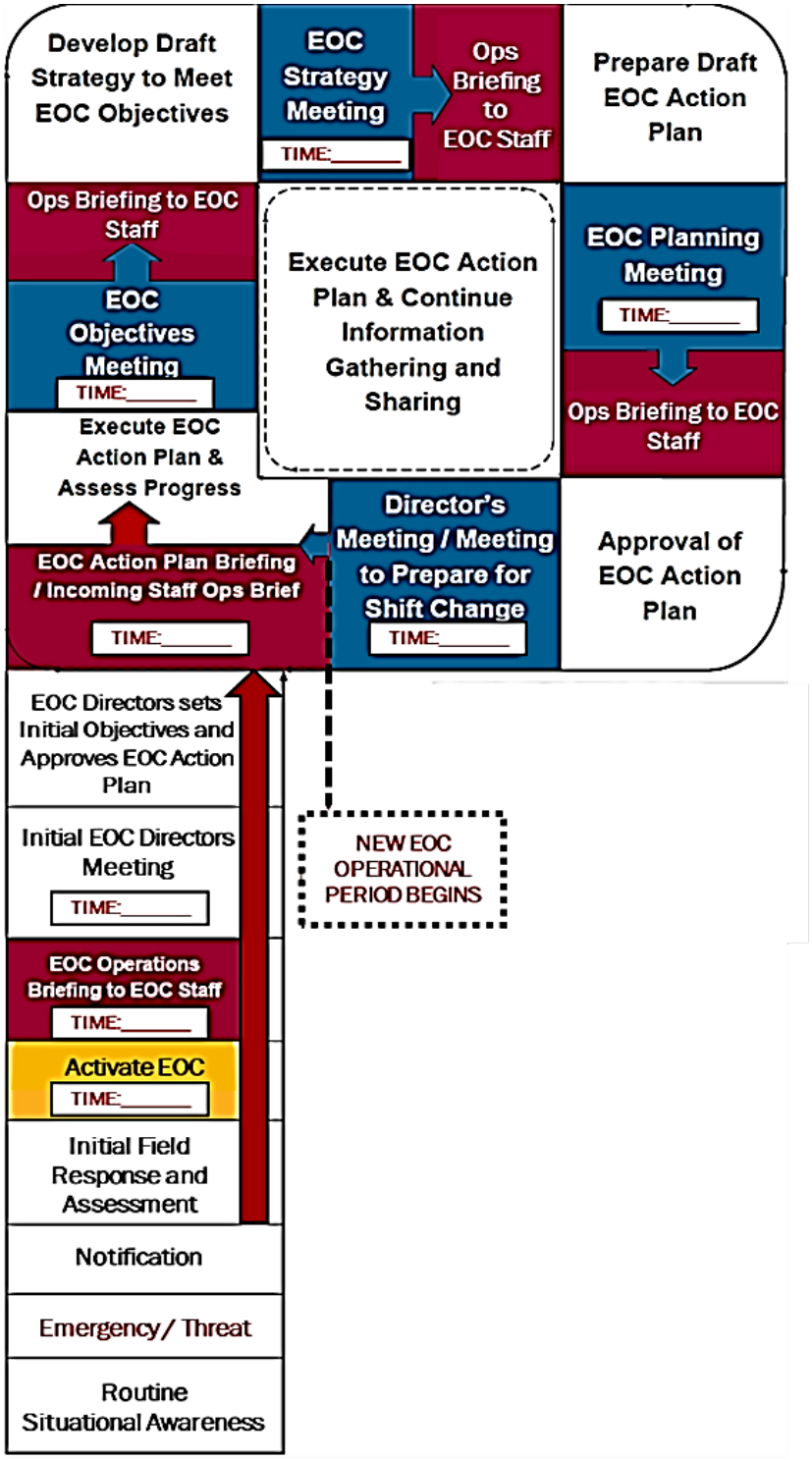
JANUARY 2020

* Indicates optional position when activated

Appendix C: Denver Situational Awareness (SA) Tool

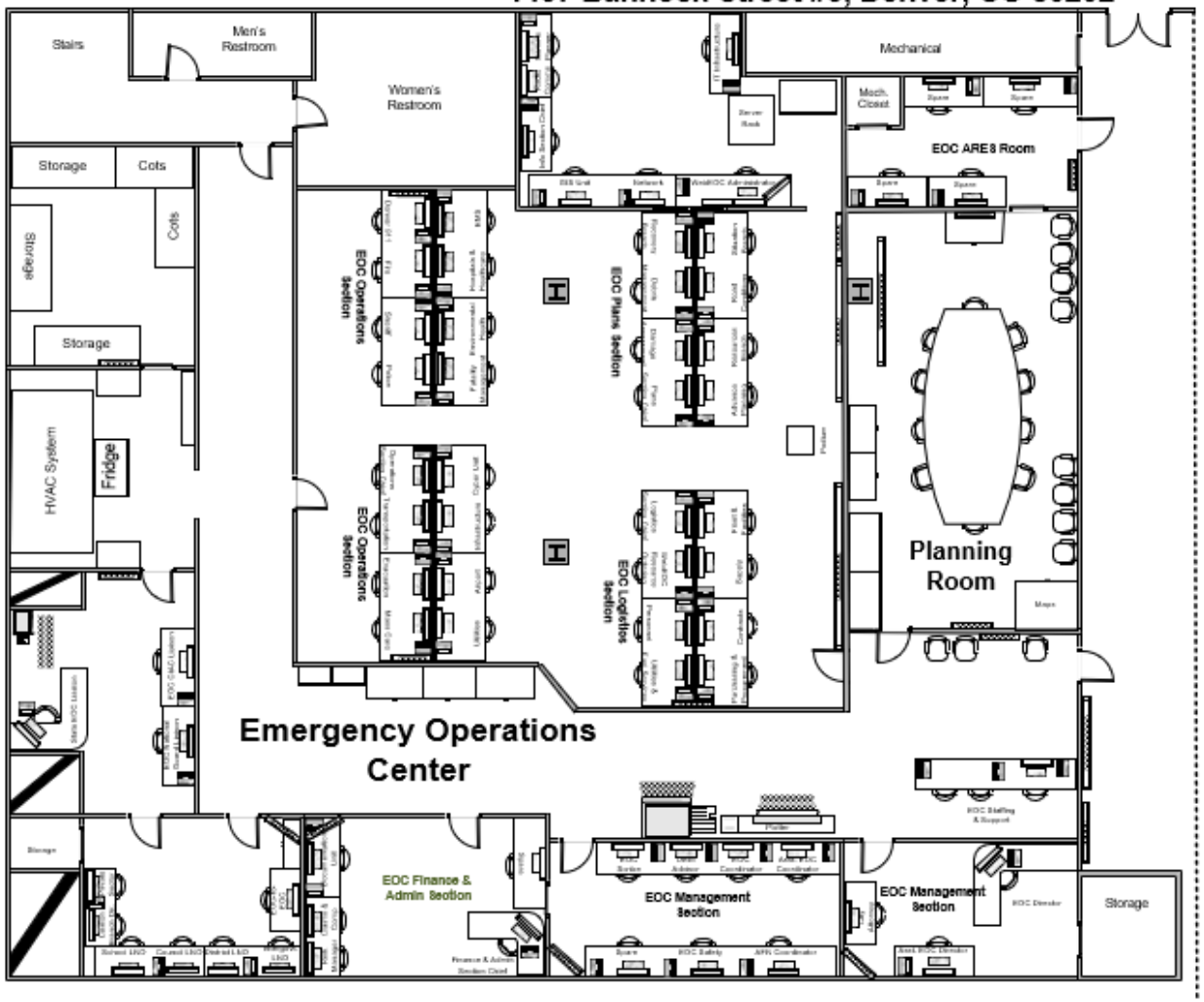


Appendix D: Denver EOC Planning P Document

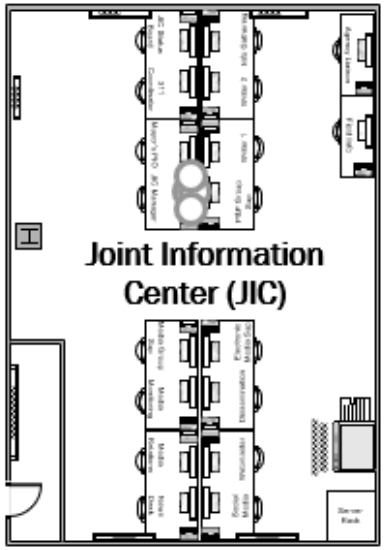


Appendix E: Denver EOC Floor Plan

City and County of Denver Primary Emergency Operations Center (EOC)
1437 Bannock Street #3, Denver, CO 80202



Room 30 located across from the elevators



Feb 2020

Appendix F: Core Capability Mapping

FEMA's National Preparedness Goal defines what it means for the whole community to be prepared for all types of disasters and emergencies. The goal is: "A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to and recover from the threats and hazards that pose the greatest risk." The National Preparedness Goal describes 32 core capabilities that address the greatest risks to the nation. The FEMA AAR development team has mapped the focus areas included in this report to their associated core capabilities.

Table 2: Core Capability Mapping

Focus Area	Core Capabilities
Planning	▪ Long-term Vulnerability Reduction ▪ Operational Communications ▪ Operational Coordination ▪ Planning ▪ Risk and Disaster Resilience Assessment
Emergency Operations Center	▪ Operational Communications ▪ Operational Coordination ▪ Planning
Activation Fatigue	▪ Community Resilience ▪ Planning ▪ Risk and Disaster Resilience Assessment
Public Information and Warning	▪ Environmental Response/Health and Safety ▪ Operational Communications ▪ Planning ▪ Public Information and Warning
Mass Care and Housing	▪ Community Resilience ▪ Housing ▪ Mass Care Services ▪ Planning ▪ Risk and Disaster Assessment

Focus Area	Core Capabilities
Employee Redeployment	▪ Community Resilience ▪ Planning ▪ Risk and Disaster Resilience Assessment
Operational Coordination and Communications	▪ Intelligence and Information Sharing ▪ Operational Communications ▪ Operational Coordination ▪ Planning ▪ Risk and Disaster Resilience Assessment ▪ Situational Assessment
Situational Assessment Training	▪ Intelligence and Information Sharing ▪ Operational Coordination ▪ Planning ▪ Risk and Disaster Resilience Assessment ▪ Situational Assessment
Logistics and Supply Management	▪ Planning ▪ Operational Coordination ▪ Situational Assessment ▪ Supply Chain Integrity and Security
Continuity	▪ Planning ▪ Operational Coordination ▪ Situational Assessment ▪ Supply Chain Integrity and Security

Focus Area	Core Capabilities
Community Recovery and Economic Resilience	▪ Community Resilience ▪ Infrastructure Systems ▪ Long-term Vulnerability Reduction ▪ Mass Care Services ▪ Risk and Disaster Resilience Assessment
Public Health Emergencies	▪ Fatality Management Services ▪ Long-term Vulnerability Reduction ▪ Physical Protection Measures ▪ Public Information and Warning Environmental Response/Health and Safety ▪ Screening, Search and Detention
Information Technology	▪ Cybersecurity ▪ Intelligence and Information Sharing ▪ Long-term Vulnerability Reduction ▪ Operational Communications ▪ Operational Coordination
Management	▪ Operational Communications ▪ Operational Coordination