IRC Recommendations	City Response	Status Update / Milestone Dates	Departments Involved
1. Begin regular large-diameter valve assessment (contract with HydroMax or Wachs for relatively quick schedule). *Immediate Recommendation*	Five new positions were approved in the FY24 Water Resources Budget to establish a dedicated valve crew. Staff is currently working through the interview and onboarding process for these positions. In order to start valve assessment as soon as possible, Water Resources intends to hire a contractor to fast track the valve program until new staff is onboarded and trained. Staff is currently obtaining quotes from contractors. Upon obtaining the required number of quotes, the budgeting and contracting process will begin. The contractor (and then the 5 employees) will access and record valves 16" and larger (approximately 500) to determine the condition, position, GPS coordinates, and any other observations pertaining to the operation of each valve.	August 2023 - obtain contractor estimates Fall 2023 - Onboarding new staff for dedicated valve crew	Water Resources - Distribution Operations Div.
2. Enable SCADA control of the South control valve for a full range of flow. *Immediate Recommendation*	Water Resources is implementing changes to distribution control points that will impact the benefit of the referenced valve. It is necessary to better understand the impacts of these changes, including if operating the referenced valve over the full diameter of the pipe will cause increases in pressure that negatively impact older waterlines. Water Resources has the ability to enable SCADA control of the referenced valve whenever it is safe to do so. In the meantime, the valve can be operated in-hand/ manually at the site.	In progress	Water Resources - Water Production Div.
3. Evaluate the existing pumps at the East Asheville Booster Pump Station, by inspection and with pump tests, for the purpose of producing a EABPS Preliminary Engineering Report (PER), detailing what will be needed to refurbish the EABPS and return it to useful service for system redundancy during emergency events and future demand. *Short-Term & Long-Term Recommendation*	The East Asheville Booster Pump Station (EABPS) was taken offline in 2010 due to a failure in the Programmable Logic Controllers that control the Variable Frequency Drives that control pump operations. The City supports an evaluation and the development of a Preliminary Engineering Report (PER) for the EABPS. Water Resources will evaluate available budget and develop a Request for Qualifications to hire a consulting engineer to produce the PER. It may require up to 18-months to complete the PER. This evaluation will include an assessment of the East Asheville Booster Pump Station, including potential impacts or benefits it would have to the current system if returned to service.	First quarter 2024 - engineering firm selection and contract award Up to 18-months to conduct Preliminary Engineering Report (PER)	WRD - Engineering Services & Water Production divisions. supporting division NE and SW Distribution Operations
4. Create a function or tool within WRD's SCADA Historian that derives Total Daily Demand at the end of each midnight-to-midnight period. This will allow WRD staff to compare each day's Total_Supply_Input versus Total_Demand. *Short-Term & Long-Term Recommendation*	Upon completion of the Advanced Metering Infrastructure (AMI) project, total consumption can be calculated and reported on a daily basis. This data can the be compared to the daily amount of water supplied to determine variances in the difference. Staff is exploring available data to see if a solution can be reached before AMI completion.	2025 - substantial completion of AMI project Fall 2023 - staff review of Total Daily Demand tool	WRD - Water Information System Manager

IRC Recommendations	City Response	Status Update / Milestone Dates	Departments Involved
5. Expedite the implementation of Advanced Metering Infrastructure (AMI) throughout the water system. AMI technology and the inherent benefits it provides would have been invaluable to the WRD during the December 2023 event. Many of the communication and operational miscues that hampered WRD's response during the recent event could possibly have been avoided. *Short-Term & Long-Term Recommendation*	City Council approved $28,792,604 on July 26, 2022 to move forward with the installation of Advanced Metering Infrastructure (AMI) technology throughout the Asheville Water System. Newly installed meters utilizing AMI technology will provide customers and Water Resources with information related to customer usage (customer side leaks, unusual usage, etc.). Implementation of the AMI project is a priority for Water Resources and began in May 2023. The project will replace approximately 63,000 water meters and is expected to be completed at the end of 2025. Water Resources and the project contractors are fully committed to prioritizing and implementing AMI technology as quickly as possible.	2025 - substantial completion of AMI project Project is currently 5% complete	WRD - SW Distribution Operations and Customer Service divisions
6. Re-evaluate the overall Role of the Engineering Division within the Water Resources Department. Consideration should be given to adding a "Production Engineer" position. The goal should be to hire or groom a knowledgeable, experienced Engineer who is engaged in the day-to-day operations and decision-making of the water utility. *Short-Term & Long-Term Recommendation*	The Engineering Services Manager is a member of the Water Resources Leadership Team. The Engineering Division of the Water Department currently has eight employees, three of whom are a licensed Professional Engineer (PE). Moving forward, one of the Engineering Division PEs will begin to take a more active role in Water Production projects/activities. A Production Engineer/Project Manager position will be requested as a part of the Fiscal Year 2025 budget process.	Fall 2023 - an existing PE from the Engineering Division will take a more active role in Water Production projects and activities. FY25 - FTE budget request for Water Production Project Engineer.	WRD - Admin., Engineering Services & Water Production Divisions, Human Resources
7. Conduct an overall assessment of how well the Water Resources Department has managed the ongoing challenge of Knowledge Retention. Identify knowledge gaps and develop strategies to address them as quickly as possible. *Short-Term & Long-Term Recommendation*	Water Resources is researching best practices across the Water industry to assess the department's knowledge retention strategies and to develop a comprehensive approach to strengthen knowledge transfer and cross-training. Water Resources will also work with Human Resources to develop systems and structures to support the department's knowledge retention needs.	Ongoing	All Divisions; Human Resources
8. At least semi-annually, plan and conduct Table-top Exercises (TTX's) to enhance the effectiveness of the department's and the community's overall emergency response capabilities. *Short-Term & Long-Term Recommendation*	The city's new Emergency Operations Plan (EOP) will include an Integrated Preparedness Plan (IPP). The IPP will provide a schedule for the city to regularly exercise the EOP, which includes table top exercises for a variety of events, including Water specific emergencies Water Resources also maintains a departmental emergency response plan and annual training calendar that provides for table top exercises that will be attended by Fire Department representatives, County(s) representatives, and other partners to insure alignment with the city's overall EOP/COOP structure.	August 14 & 15 - 2023 table top training Additional trainings will be scheduled as part of the implementation of the Emergency Operations Plan (EOP).	WRD - department wide

IRC Recommendations	City Response	Status Update / Milestone Dates	Departments Involved
9. Accelerate the installation of additional District or Zone Meters (DZM) in the distribution system. WRD has already installed a limited number of district meters and has seen first hand the benefits derived from flow and pressure data they provide. *Short-Term & Long-Term Recommendation*	Water Resources is currently working with a consulting engineer and third party contractor to determine the best locations for additional DZMs to improve and expand the accuracy of data. Water Resources has a goal of installing three additional DZMs in FY24. The Advanced Metering Initiative (AMI) platform is also expandable to accommodate District or Zone Meters, and pressure sensors.	July 1, 2024 - three new DZMs installed and functional	WRD - SW Distribution Operations & Engineering Services divisions
10. Consideration should be given to the creation of a Water Utility Advisory Panel. The Panel would be of assistance to the City Manager, City Council and the Mayor in their oversight responsibilities related to the Water Resources Department. Done correctly, such a Board could be a tremendous resource for the WRD Leadership, City leadership, community, and region as a whole. *Short-Term & Long-Term Recommendation*	There is currently a community led Working Group that is assessing the City of Asheville's current Boards and Commissions structure. Establishment of new advisory boards is on hold awaiting the Working Group's recommendations	Re-evaluate following receipt of the Boards and Commissions Working Group recommendations.	WRD Admin, CMO

IRC Recommendations	City Response	Status Update / Milestone Dates	Departments Involved
1. The operational approach to public communications need to be replaced with a system where Comms professionals are elevated in importance.	The soon to be developed Emergency Operations Plan (EOP) clearly articulates this recommendation as the practice the City will follow in it's crisis communications. The National Incident Management System (NIMS) model and associated Incident Command Structure (ICS) speak to the roles of the Incident Commander, communication professionals, executive leadership and elected officials in a crisis. Both the NIMS and ICS best practices are integrated in the Emergency Operations Plan.	Fall 2023 - completion of the EOP. This plan will be updated and exercised regularly	AFD, CAPE, CMO, Council, WRD
2. Hire a Public Information Officer dedicated to the Water Resources Department.	A Public Information Officer position was approved in the Water Resources FY24 Budget. The position was posted for advertisement on July 20, 2023; closes on August 11, 2023.	July 20, 2023	WRD, Human Resources, CAPE
3. Crisis COMMS training for ALL CAPE staff, based on the Incident Command training program, to provide redundancy and ICS shift flexibility.	CAPE staff that would serve in crisis communication roles have completed ICS 100, 200, 700 and 800 courses. Some CAPE staff have completed Basic PIO courses as well. Following the Integrated Preparedness Plan (IPP) additional coursework will be recommended and scheduled.	In progress	CAPE
	Additionally, trainings will be logged in the new Human Resources Information System (HRIS) software scheduled for implementation in FY24	July 2024	CAPE, HR
4. The institution of the COMMS portion of the Incident Command System under the National Incident Management System. This can be used by COMMS. Using the COMMS portion of ICS places the COMMS responsibility with the Incident Commander and the Public Information Officer. No one else is responsible for leadership over COMMS decisions or staffing.	This will be included in the implementation of the new Emergency Operations Plan	Fall of 2023	AFD, APD, CAPE, WRD
5. Require crisis COMMS training for Water Resources Department staff and elected officials to ensure everyone is on the same page before the next crisis. NIMS/ICS training and certifications for City staff responsible for crisis COMMS.	CAPE staff that would serve in crisis communication roles have completed ICS 100, 200, 700 and 800 courses. Some CAPE staff have completed Basic PIO courses as well. Necessary trainings for Water Resources Staff and elected officials will be included in the Integrated Preparedness Plan (IPP).	In progress	CAPE
	Moving forward, trainings will be logged in the new Human Resource Information System (HRIS) software. This will ensure staff training needs can be more actively managed and recorded.	July 2024	Human Resources
	This will be included in the implementation of the new Emergency Operations Plan	Fall of 2023	AFD, APD, CAPE, CMO, Council, WRD

IRC Recommendations	City Response	Status Update / Milestone Dates	Departments Involved
6. NIMS/ICS training and certifications for City staff responsible for crisis COMMS. Certifications include NIMS/ICS 29, 42, 100, 200, 700, 800, and FEMA Basic PIO L105.	CAPE staff that would serve in crisis communication roles have completed ICS 100, 200, 700 and 800 courses. Some CAPE staff have completed Basic PIO courses as well. Trainings will be guided by recommendations of the Integrated Preparedness Plan (IPP).	In progress	AFD, APD, CAPE, WRD
	Additionally, trainings will be logged in the new Human Resources Information System (HRIS) software scheduled for implementation in FY24.	July 2024	CAPE, Human Resources
	This will be included in the implementation of the new Emergency Operations Plan.	Fall of 2023	AFD, APD, CAPE, CMO, Council, WRD
7. Regular engagement with Buncombe County COMMS staff.	City CAPE and County CAPE have a good relationship and work together on a regular basis. Examples include the partnership in supporting Reparations in which monthly meetings, regular emails and phone calls take place. We regularly serve on hiring panels with and for each other. Staff members at all levels connect to share information on operations (e.g., communication strategies, engagement strategies, television production). This relationship was strengthened during COVID where City staff played a daily role in working collaboratively with our County partners. Finally, our respective teams stay connected through the WNC Communication Team, a regional team of communicators that is coordinated by City of Asheville and Buncombe County staff.	Ongoing	CAPE

IRC Recommendations	City Response	Status Update / Milestone Dates	Departments Involved
8. Development of an updated crisis communications plan *Incorporate any ICS/NIMS-related changes *Incorporate staffing changes *Develop a system for more consistent public communications using best practices, including the use of mass media and social media streams to handle citywide communications. *Shift passive information streams like AVL Alerts to secondary roles. Helpful, but not to be considered a primary path to the public. *More effective and structured use of elected officials, who would serve in their proper public information roles.	The EOP has NIMS/ICS best practices in crisis communication woven throughout it and most specifically within the Communication & Public Engagement Annex. This portion of the document along with the Emergency Operations Plan (EOP) Hazard Table constitutes the crisis communication plan and will include templates for a number of hazards including impacts to Infrastructure from Severe Weather and from a Winter Storm. The Continuity of Operations Plan (COOP) lays out the path for staffing changes. Adherence to the COMMS structure outlined in the EOP will ensure best practices in crisis communication are used, to include making safety and critical information the highest priority. Additional or new information will be released on a consistent/predictable basis following communication best practices. With the EOP implementation of a complexity analysis for each event, there will be a clearer path forward for determining the emergency response to an outage which will in turn inform the priority assigned to AVL Alerts as a primary or subordinate communication tool. Elected officials will continue to be provided talking points for events that elicit an emergency management response. The EOP and associated training will clearly identify roles and responsibilities for elected officials.	Fall of 2023	AFD, CAPE
	Additionally, reworking the Social Media Plan into a Social Media Strategy Plan is a CAPE Department work plan item for FY24.	July 2024	CAPE
	Media Training for City Staff is also a CAPE Department work plan item for FY24	July 2024	CAPE All Departments
	Staff continues to enhance media relations. For example, monthly "Coffee with CAPE events" are set to begin in September.	Ongoing	CAPE
9.The elevated importance of the design and implementation of AMI to address the most pressing public communication issues that hampered the operational response; harmed the credibility of the communications response; and created an environment where inaccurate information was relayed to the public on multiple occasions to fill in the gap information caused by the “radio read” meters.	In the rollout and implementation of AMI, staff will clearly communicate what the system can and cannot do with respect to developing outage maps and/or outage messaging	Fall 2023	Water Resource Department CAPE

IRC Recommendations	City Response	Status Update / Milestone Dates	Departments Involved
10. Off-the-record “sit down sessions” with top local media outlets to air grievances and differences that influence the public communication process. While it was clearly stated the press has nothing but respect for their direct liaison, it is clear some issues need to be discussed. These discussions will only help both Asheville and the news media do their jobs on behalf of their citizens and readers.	CAPE Department staff are developing recurring monthly opportunities to 'meet and greet' with members of the local media for conversational updates. The goal is to re-establish a face-to-face, personal relationship with the media.	Opportunities will begin in August 2023	CAPE
11. Ahead of next winter, COMMS should conduct proactive outreach in November, before Thanksgiving, that lays out all of the lessons learned from this event and the resulting actions taken. Proactive “break repair” demonstrations, an unveiling of a new outage map, instructions on how to prep for the winter, and information on how to be best informed during an emergency can all be incorporated into this effort. It is a tried-and-true for Asheville to get significant trust back, both regarding its operational response and its COMMS, before the next winter sets in.	This will be incorporated into the new Water PIO's work plan and supported by the greater CAPE Team. Additionally, CAPE staff is working with AFD, PW and Water on Emergency Preparedness Month (September) messaging to include blog posts and elevated social media messaging including videos. This campaign will culminate at the end of September with the Festival of Neighborhoods on September 30 where there will be a focus on severe weather preparedness. Additional cold weather messaging will be featured in November and December.	August 2023 - Preparation of materials September 2023 - messaging campaign November & December - cold weather messaging	AFD, CAPE, Water, PW

IRC Recommendations		City Response	Status Update / Milestone Dates	Departments Involved
The use of the Incident Command System was not implemented as outlined in the National Incident Management System guide, as directed by Homeland Security Presidential Directive 5 five and PPD-8 National Preparedness, or as specified in the 2010, City of Asheville Emergency Operations Plan.	1.1 To effectively manage incidents of all scopes and sizes, the design and implementation of one Incident Command System (ICS) should be established, trained, and exercised throughout the City of Asheville. The ICS system should incorporate the components of command and management, preparedness, resource management, communications, and information management, supporting technologies, and ongoing management and maintenance as outlined in the National Incident Management System.	1.1 All principles and components of ICS and NIMS are included in the design of the new Emergency Operations Plan (EOP)	Fall 2023 - completion of Emergency Operations Plan (EOP), Continuity of Operations Plan (COOP), Inter Preparedness Plan (IPP)	All
	1.2 Preplan (train and exercise) who will fill critical ICS Command and General Staff positions. For example, for a citywide or large-scale incident such as this, it is plausible that a City Manager would be best suited for the Incident Commander role due to the decision-making requirements, approvals needed, involvement of elected officials, and the implementation of a Unified Command. These three officials should then attend training and participate in exercises often. Operating within the ICS becomes overly cumbersome and often abandoned because of a lack of training and experience operating within it.	1.2 Based on best practice, the update to the EOP outlines that the City Manager is the lead of the Senior Policy Group and his/her roles, and decision-making authority is outlined in the Assignment of Responsibilities Section. The integrated Preparedness Plan (IPP) will outline what training each individual role will need.	Fall of 2023	All
Inconsistent or complete lack of training for elected officials, city management, and operational staff surrounding emergency management/response.	2.1 Establish minimum training of Incident Command: Mayor and Vice Mayor: ICS 100, 200, 300, 700, 800 Elected body: Local Elected and Appointed Officials Course City Manager(s) and Department Heads: ICS 100, 200, 300, 400, 700, 800 Supervisors in customer forward depts: ICS 100, 200, 700, 800	2.1 The Integrated Preparedness Plan (IPP) being created to support the Emergency Operations Plan (EOP) will outline what training each individual role will need.	Fall of 2023	All
	2.2 Establish training surrounding EOP and COOP Roles and responsibility of elected officials during an emergency	2.2 The Integrated Preparedness Plan (IPP) will outline what training each individual role will need, the elected officials guide will outline what elected officials roles are during an emergency	Fall of 2023	All
	2.3 Establish and implement an exercise schedule to include the opening of an EOC and Unified Command/Multi Agency Coordination Group Structure.	2.3 The Integrated Preparedness Plan (IPP) includes an exercise schedule. The Emergency Operations Plan (EOP) describes Unified Command and Multi Agency Coordination coordination group.	Fall of 2023	All
There was no consideration for the implementation of a Unified Command although the incident extended beyond the municipal borders of Asheville.	3.1 An incident extending beyond the boundaries of a municipality affects populations which have no voice within the City of Asheville government. Future impacts which affect populations outside of the municipal limits should formally include professional representatives of those areas (Emergency Management, Fire Departments, etc.)	3.1 The design of the new Emergency Operations Plan (EOP) Complexity Analysis, which determines what level of emergency response is needed, now includes a geographic scope consideration.	Fall of 2023	All
	3.2 Buncombe County Emergency Management should actively pursue involvement during incidents that affect its residents.	3.2 The City is continuing to strengthen relationships with County stakeholders.	Complete / Ongoing	All
	3.3 Buncombe County and the CoA should form a joint Incident Management overhead Team to assist the operation of an EOC or to staff and function within an EOC.	3.3 In May 2023 the City and County signed an MOU to join the Smokey Mountain Incident Management Team.	Complete / Ongoing	All

IRC Recommendations		City Response	Status Update / Milestone Dates	Departments Involved
	3.4 The COVID pandemic response was and is a successful model for what a Unified Command EOC-ESF structure looks and operates like. The City of Asheville and Buncombe County should plan to exercise joint EOC activations bringing together critical ICS components to include the operation of a JIC.	3.4 The Emergency Operations Plan (EOP) includes structure and coordination, and specifically describes including Buncombe County partners. The Joint Information System and JIC is included in the EOP. Additional coordination training will be included in the Integrated Preparedness Plan (IPP) for training and exercise with County stakeholders.	Fall of 2023	All
The Emergency Response approach was appropriately guided by FEMA Community Lifelines but failed to acknowledge the community perception and reaction to the crisis. Communication with community partners was either absent, lacked consistency, and/or was inaccurate	4.1 The approach and response to the incident by Asheville Fire Department was appropriate but lacked sensitivity to what the community was feeling and coping with. The perceived insensitivity is a management prerogative, and the recommendation would be for a lessons learned after action.	4.1 In development of the Emergency Operations Plan (EOP) AFD will communicate the pillars of emergency response in all future incidents: Life Safety, Incident Stabilization, Property Conservation. The Liaison Officer role will communicate and coordinate with stakeholders.	Fall of 2023	All
	4.2 Elected officials require the necessary training to understand and operate within established parameters during a crisis. A method of communication to keep elected officials informed while meeting general statue requirements should be established.	4.2 The Emergency Operations Plan (EOP) includes roles and responsibilities for the City Manager, which includes keeping elected officials informed, and a schedule for notifications and updates as well as an elected officials guide.	Fall of 2023	All
	4.3 The Emergency Response sub-committee respectfully disagrees with the Fire Department leadership in that the activation of a formal EOC was needed. The size, complexity, and duration of the incident alone call for its activation however, the lack of an ICS system, planning, operations, documentation, and communications could have all been assisted with key positions meeting and working within an ICS system and EOC. EOC activation benchmarks should be established.	4.3 The new Emergency Operations Plan (EOP) informs future decisions to activate: a Complexity Analysis will inform activation levels and ensure key positions are present for the duration of the incident. Benchmarks are established within Complexity Analysis.	Fall of 2023	All
	4.4 Community partners and critical water users require accurate and timely situational reports. The implementation of a Unified Command/MAC and an EOC activation would likely have positively impacted this need. Email should be a tertiary method of communication.	4.4 In development of the new Emergency Operations Plan (EOP) a need for a new tool to improve situation reporting has been identified. This tool will build upon existing reporting tools to consolidate information into a one-page report providing data on community lifeline stabilization. Deliverables include: IAP, Situation Report	Fall of 2023	All
Outdated and vague Emergency Operations and Continuity of Operations Plans	5.1 Both plans are currently under revision and recommend abiding to the five-year revision period (EOP Base Plan should be updated every 2 years, Annexes should be updated annually, and COOP Plan should be updated annually; HMP must be updated every 5 years). Important note: The current draft fails to list a long duration of freezing temperatures related to water distribution as a potential threat.	5.1 The new Emergency Operations Plan (EOP) has Hazard Annexes including Winter Weather, Freeze Hazard, and Infrastructure Failure Hazard. Note the EOP should be updated every two years, EOP annexes should be updated annually, and the Continuity of Operations Plan (COOP) should be updated annually.	Fall of 2023	All
	5.2 The EOP wording is vague to be used by those without formal emergency response training. For example, the wording regarding the duties of the Executive Group states that the mayor will “monitor the emergency response during disaster situations and provide direction where appropriate.” Without formal emergency response training, it is unlikely that the appropriateness of direction can be accurately gauged, particularly since the severity of this incident was perceived differently by the members of the Executive Group.	5.2 The Emergency Operations Plan (EOP) Roles and Responsibilities will outline this more clearly. Battle Rhythm provides understanding of when leadership will receive updates and information. Severity of the Incident is included in the Complexity Analysis.	Fall of 2023	All
Water-Related Recommendation that is applicable to this effort.	6. Short/Long-Term Finding: At least semi-annually, plan and conduct table-top exercises (TTX’s) to enhance the effectiveness of the department’s and the community’s overall emergency response capabilities.	6. This will be included in the City's Integrated Preparedness Plan (IPP).	Fall of 2023	All