

NEW YORK STATE PREPAREDNESS
AND RESPONSE EFFORTS

Blizzard of 2022 After-Action Review

August 2023



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I. Executive Summary

In December of 2022, a winter storm moved in a narrow band across Lake Erie, culminating in a blizzard that severely impacted western New York (WNY). The region had not seen a storm like this in well over a generation. Some of the worst conditions of the blizzard were seen in Buffalo, New York. According to the National Oceanic and Atmospheric Administration (NOAA), the storm that has come to be referred to as the Blizzard of '22, claimed 32 lives.¹ Several authorities, including Erie County as reported in the Washington Post, have recorded the number of deceased to be 47 as a result of this devastating storm.² The events of the blizzard represent several challenges and successes. In the spirit of constantly improving the State's emergency response services and ensuring that best practices are maintained, New York Governor Kathy Hochul commissioned this after-action review.

Throughout this report, readers will find a recounting of the facts of the storm and analysis of the emergency response actions. However, the storm must also be put in a broader context. The Blizzard of '22 was different from and more powerful than the storms of previous years because the high winds, snowfall, and freezing temperatures set in faster than expected and continued for nearly two days. Additionally, harsh conditions developed rapidly. The winter storm that moved along Lake Erie towards Buffalo in December 2022 quickly went from a severe winter storm to a blizzard on the Friday before Christmas, bypassing several typical intermediate weather system phases. This left authorities with a matter of hours to adjust plans and respond appropriately. Further complicating response efforts was the fact that this all occurred over the Christmas holiday weekend. With that, many people were traveling to the region to visit family and businesses were adjusting hours to accommodate extensive retail shopping over a long weekend, leading many to prioritize family and social plans over storm preparation.

The blizzard was also challenging for emergency managers because of numerous hazards that all occurred simultaneously. Rapidly falling snow and sustained winds over 40 mph created life-threatening conditions. Low visibility, freezing temperatures, and snow drifts up to nearly seven feet hindered even the largest of vehicles from moving. The storm persisted for five days and included approximately 37 hours of blizzard conditions, threatening the health and safety of anyone who went outside for more than a few moments. Some residents across the Buffalo metro area lost power and public safety agencies were forced to stop responding to emergency calls during the worst of the storm.

The effects of simultaneous weather hazards and their cumulative long duration proved to be an added challenge of the "generational storm." Furthermore, this was just one aspect of a much larger State-wide storm that forecasted threats to areas from Buffalo to New York City. Leading up to the blizzard, New York State (the State) monitored and prepared for severe winter weather across the state, as well as positioned assets to mitigate potential impacts including flooding and snow accumulation in areas that were forecasted to get the worst of the storm. Across the State, local officials initially manage incidents. However, once a situation exceeds their capacity, the State provides additional support. On the morning of Friday, December 23, conditions quickly deteriorated in WNY. In response, the State utilized a "whole-of-government" approach to provide technical assistance to the region. The New York State Division of Homeland Security and Emergency Services (DHSES) coordinated a multiagency coalition of government entities and external partners that included the NYS Department of Transportation (NYSDOT), New York State Police (NYSP), NYS Thruway Authority (NYSTA) and other members of the State's Disaster Preparedness Commission. This group worked around the clock to clear snow, restore utilities, and reach those in need. Once it became clear that WNY would see the worst of the blizzard, State efforts quickly shifted to focus on that area, with the support of local government officials and external partners from Erie County and the City of Buffalo.

This report details the facts of the event and identifies four discreet **areas for analysis** and recommendations. These areas are 1) **Communications**; 2) **Technology**; 3) **Capacity**; and 4) **Coordination**. Within these areas of analysis, the report notes specific strengths and opportunities for the State to strengthen its emergency response capabilities.

¹ (NOAA 2022)

² (Sacks 2023)

For **communications**, this report considers elevating the State's approach to coordinating and sharing critical information during an emergency. This analysis considers how the State's emergency response infrastructure should distribute critical information internally and to the public, looking at instances where messages can be coordinated among stakeholders with optimal efficiency and understanding.

During this storm, New York's existing emergency alert system, NY-Alert, was not used due to a low subscriber base, which can be grown through state-wide emergency preparedness awareness campaigns. This tool will allow the State to communicate critical information quickly to the public via their preferred method of delivery. Additionally, the State should consider standardizing language to communicate the reality of life-threatening conditions by effectively detailing the level of severity and potential risks. This language should be flexible to ensure the public is ready for region-specific hazards. Finally, messaging across the State agencies and their local partners must be communicated consistently to present a coordinated and intelligible plan to residents, especially for actions that involve multiple jurisdictions.

Sections on **technology** look at assessing essential tools used to support emergency management efforts and discussing how the State can improve the use of existing emergency response tools. The report presents methods to encourage standardized use of emergency management reporting software through training and integration, where appropriate.

To support this effort, the State should draft more user-friendly guides that staff members can read and utilize during events or review quickly to refresh existing trainings. As the host of New York Responds (NYR) trainings, DHSES should bolster its existing support for NYR training for local response staff, particularly increasing in-person training that delivers technical and experiential instruction to a wide variety of responders. Response personnel noted that a general unfamiliarity with certain processes and interfaces contributed to initial coordination challenges between state and local entities. Finally, the State and its local partners should consolidate emergency management software usage to one system that has clear processes for integrating incident data and eliminates any potential for disconnects or obscured information.

Capacity concerns the possibility of enhancing the State's support of local emergency management protocols and response initiatives. Observing that local governments have varied levels of proficiency when it comes to emergency response and that the State needs to have keen awareness of these capabilities, the report considers how the State can support localities in enhancing their own emergency response. While the State maintains a readiness posture to engage in supplemental disaster management, DHSES and its partners do not always understand the existing capabilities of counties and localities, and where there are gaps that the State will have to help fill.

Recommendations incorporate the enhancement of existing processes to understand local capacity and mechanisms to bolster local emergency response capabilities. To better discern local capabilities, the State can use the existing County Emergency Preparedness Assessment (CEPA), which lists available assets and preparations for some incident-specific resources. Enhancements to the CEPA can bolster the report to provide additional detail and specific accounts for a wider range of assets and potential incidents. The State should additionally incentivize counties to seek accreditation with the New York State Emergency Management Association (NYSEMA), through its Local Emergency Management Accreditation Program (LEMAP), which holds counties to agreed-upon emergency management standards that will augment and standardize local capabilities statewide. Finally, the State should explore how it can best build on existing capacity by establishing a state-wide shared vision of preparedness, whether that be in training, technology, coordination, or resources.

In the **coordination** area, the report reviews the State's approach to engaging with various stakeholders critical to the statewide emergency response from preparation through recovery. The report notes that severe weather events pose unique challenges to the State that require enhanced methods to prepare and train for emergency response operations in an era of accelerating climate change. During this storm, conditions in WNY were unprecedented in terms of duration and severity. The State will need to prepare for a potential increase in severe weather, including blizzards in WNY. While recommendations focus on blizzard-specific planning, the introduction of regionally appropriate training exercises and other preparation activities can be done to enhance operational readiness for future disruptions. The State's Comprehensive Emergency Management Plan (CEMP) includes a coordinated approach to managing planning, response, and recovery efforts for various incidents. The CEMP should have a blizzard-specific annex added to establish the State's approach to managing the extreme conditions blizzards bring, including heavy snow, sustained high winds, and whiteout conditions.

To further strengthen emergency planning, the State should implement routine tabletop exercises with localities to practice responses to regionally appropriate weather events. Finally, to eliminate information gaps and staffing inefficiencies, State agency partners should ensure the appropriate operational or executive level staff are physically present in the State Emergency Operations Center (SEOC).

Importantly, the report does not assess State actions on a pass-fail basis. Instead, this report provides a factual recounting of events and the efforts of various stakeholders to support the response effort. In that recounting, the report raises observations with an intent to guide discussions on potential areas for improvement. While some suggestions are offered, the path forward for the State when it comes to emergency response is ultimately left to the decisions of policymakers and the State's emergency management agencies.

II. Introduction

New York State's (the State) Division of Homeland Security and Emergency Services (DHSES) engaged Guidehouse to conduct an after-action review (AAR) of the State's preparation and response to the Blizzard of '22.

A. Scope, Methodology, and Organization

The focus of this AAR is on the State and how its agencies prepared for and responded to the blizzard. Although the fact gathering focused on all aspects of government response, this report is written with a focus on strengths to sustain and potential lessons learned for State agencies. This review covers all relevant State agencies that played a significant role in storm response during the blizzard, including DHSES. The review focuses its analysis on the areas of communications, technology, capacity, and coordination. After analysis, this report offers feasible recommendations where appropriate.

This AAR was conducted by performing an extensive review of documentation and data, interviews of key personnel, analyses of various communication efforts, and focus groups with residents who were in the Buffalo area during the blizzard. Over 1,300 pages of documentation were reviewed, which contributed to a factual understanding of events. These documents included policy documents, organization charts, internal email briefings, and weather reports and maps. The team also conducted 50 interviews. These sessions were with personnel at the State, local agencies, and private sector organizations, where staff members ranging from executives to operational managers provided perspectives on planning, operations, and communications. A review of communications included a collection and analysis of social media posts, press releases, and advisories put out by State and local agencies. These messages contributed to public outreach and provided data on the effort to alert the communities that could be impacted by the storm. Lastly, a series of focus groups offered insight into the thoughts and experiences of the Buffalo residents who experienced the storm.

Taking the findings from that research, this report begins with an overview of the storm, establishing its severity against the context of historical trends and detailing the impact that unique weather patterns had on State operations. Subsequent chapters address the State's preparation and response, public communications, government coordination, and recovery in the storm's aftermath. Observations of strengths to sustain, lessons learned, and recommendations are presented throughout the chapters as issues are discussed and summarized at the end of the report. The areas identified as the framework for understanding and reviewing State actions are not chapters in and of themselves but are present throughout the report where appropriate.

III. Weather

The State faces numerous meteorological threats, including winter storms that carry a unique set of risks and challenges. According to the National Oceanic and Atmospheric Administration (NOAA), a winter storm is "a combination of heavy snow, blowing snow, and / or dangerous wind chills." Due to its geographic location, Western New York sees threats of severe winter storms annually, often with the possibility of these storms developing into blizzards.³ As explained by the American Meteorological Society, blizzards have a particular set of characteristics.⁴

³ (NOAA n.d. "Severe Weather 101 – Winter Weather.")

⁴ (NOAA: National Weather Service 2009)

These include:

- Sustained wind or frequent gusts of 35mph or greater,
- Falling and/or blowing snow, and
- Frequent reductions of visibility to less than 0.25 miles for three hours or longer

Snowstorms and blizzards are not rare in Buffalo and in the past decade there have been blizzards in 2014, 2018, 2019, 2020, and 2022.⁵ However, in recent winter seasons, snowfall in Buffalo has occurred primarily in longer and more powerful storms. In the winter season of 2020-2021, for example, Buffalo only received a total of 77.2 inches of snow, which is nearly 20 inches below the average for the season.⁶ However, during that season 24 inches of snow fell in just one snowstorm that lasted between December 25 to December 27, 2020, setting a new daily-snowfall record of 18.4 inches at the time.⁷

Table 1: Comparison of Conditions from the Worst Blizzards in Buffalo per Decade

<i>Blizzard Year</i>	<i>1977⁸</i>	<i>1985⁹</i>	<i>2014¹⁰</i>	<i>2018¹¹</i>	<i>2019¹²</i>	<i>2020¹³</i>	<i>2022¹⁴</i>
Total Snowfall (in)	12	3.2	60	3.2	13.6	3.2	51.9
Max Wind Speed (mph)	69	53	35	35	35	56	75
Lowest Temperature (°F)	-7	-10	14	11	-3	23	4

Even in the context of worsening climate and weather trends, the Blizzard of '22 was uniquely dangerous. While the National Weather Service (NWS) predictions of the weather conditions were generally accurate, the speed of weather changes and the way the storm developed still posed significant challenges.

A. Antecedent Weather

Buffalo's first snowfall for the 2022-2023 winter season occurred in November 2022 during a storm that mostly impacted the southern parts of the City of Buffalo and the southern municipalities of Erie County, which are known locally as the "south towns." This storm began on Wednesday, November 16 and continued until Monday, November 21. This storm brought a total of 36.9 inches of snow into the City of Buffalo.¹⁵ The south town of Hamburg recorded a staggering 81.2 inches.¹⁶

Ahead of the challenging November storm, the State deployed its emergency response assets to western New York (WNY), coordinating its response across multiple agencies and local government offices in WNY.¹⁷ Southern Erie experienced snowfall rates of one to two inches per hour at the onset of the storm, but by Thursday the southern suburbs of Buffalo were experiencing snowfall rates of four to six inches per hour. On Sunday, snowfall rates were still high in the Buffalo metro area, with three to five inches falling per hour. The forecasted weather conditions were intense but occurred as predicted in the areas anticipated.

Lake Effect Snow Overview

According to the NWS website, "lake-effect snow occurs when cold air, often originating from Canada, moves across the open waters of the Great Lakes. As the cold air passes over the unfrozen and relatively warm waters of the Great Lakes, warmth and moisture are transferred into the lowest portion of the atmosphere."

⁵ (NOAA 2023)

⁶ (Smith, WGRZ: ICYMI A quick recap of Western New York's 2020-2021 Winter season 2021)

⁷ (Smith 2022)

⁸ (NOAA: National Weather Service n.d.)

⁹ (Forgotten Buffalo 2020)

¹⁰ (National Weather Service n.d.)

¹¹ (NOAA 2023)

¹² (NOAA 2019)

¹³ (NOAA: National Weather Service 2023)

¹⁴ (Ibid)

¹⁵ (NOAA: National Weather Service n.d.)

¹⁶ (National Weather Service 2022)

¹⁷ (West New York Papers 2022)

Overall, people in WNY were able to weather the November storm well and the storm did not result in significant damage. When the storm that would become the Blizzard of '22 was initially forecast, it is possible that some WNY residents underestimated the need to prepare, given the recent relative ease of storm experience in November 2022.

The average air temperature in December 2022 in Buffalo was 32°F.¹⁸ Because of relatively warm weather up to that point, the surface water of Lake Erie had not frozen, increasing the possibility of lake-effect snow.¹⁹ Since Buffalo is a city of narrow streets with some densely populated neighborhoods, the lake-effect snow phenomenon is particularly difficult to mitigate.

B. Blizzard Prelude

Leading up to the blizzard, NWS provided regular briefings that introduced a series of hazards that could potentially impact all of New York.²⁰ The possible hazards, reflected in briefing reports from Tuesday, December 20 included: a statewide windstorm, with WNY facing winds up to 70 mph; lake-effect snow accompanied by whiteout conditions for the Buffalo and Watertown regions from Friday afternoon into Saturday; heavy rain with two inches or more of accumulation across New York City and Long Island, posing a flood risk; coastal flooding down state; flash freezing; and potential power outages in various regions. These forecast predictions culminated in the issuance of a winter storm watch for WNY and the North Country on Tuesday afternoon. The New York State regions map can be found in the “Appendix Section B. Maps”.

On Wednesday morning, The State University of New York at Albany’s (UAlbany) Weather and Climate Analytics Center of Excellence (WCACE) provided DHSES with a weather briefing that highlighted many of the same hazards that they forecast would occur across the State, but with a growing focus on WNY.²¹ Conditions were predicted to be particularly severe in WNY. It was at this point that NWS began publicly calling the weather event a “once-in-a-generation storm” that could cause scattered or widespread power outages.²² Lakeshore flood warnings were also issued on Wednesday. In anticipation of flooding, residents of beachfront properties in Hamburg, a township just south of Buffalo, were encouraged to leave if they could. By Thursday, NWS issued a blizzard warning for WNY accordingly.²³ In addition to the blizzard and lakeshore flood warnings in WNY, NWS had active coastal flood warnings for the New York City Metro Area, winter storm warnings in the North Country, and windchill advisories across the state. Specifically, outside of WNY, other parts of the state were forecasted to receive substantial and unusually severe winter weather. Emergency managers were monitoring and preparing for a diverse set of hazards including freezing temperatures, intense wind, and the possibility of significant rainfall in areas that were outside of the range of the lake-effect snow. Leading up to Friday, December 23, there was a risk of storm surges and coastal flooding throughout WNY and in other locations across the State, potentially impacting millions of New Yorkers.²⁴

Back in WNY, NWS forecasted that Buffalo was expected to face approximately 30 hours of blizzard conditions with peak winds reaching nearly 70 mph. The NWS Buffalo forecast from Thursday, December 22 expected blizzard conditions to begin in the afternoon on Friday. DHSES and State partners planned through Thursday night under this assumption. NWS further noted that power outages were likely to cause a high impact in the region.

¹⁸ (National Weather Service 2023)

¹⁹ (NOAA: National Weather Service 2023)

²⁰ (Bassill and Stutsrim 2023)

²¹ (Ibid)

²² (Ibid)

²³ (Ibid)

²⁴ (NOAA: National Weather Service 2023)

C. Daily Blizzard Impact

Friday, December 23, 2022

From Friday, December 23 to Tuesday, December 27, WNY faced “the perfect storm” of severe winter weather. Starting early Friday morning, the weather quickly intensified. In the WNY region, due to the strong westerly winds, both Lake Erie and Lake Ontario saw rapidly rising water-levels across their eastern shores with projected 20-foot waves.²⁵ Further complicating efforts, the cold temperatures and rainfall from the previous day produced flash freeze conditions across New York.²⁶ Strong winds accompanied rapid temperature drops.²⁷ On Buffalo’s shoreline, NYS Mesonet recorded wind speeds of 50 to 70 mph. Heavy snow in WNY began around 8:40am that morning, culminating in 22.3 inches of snow falling by the end of the day.

Buffalo officially began experiencing blizzard conditions as of 8:47am on Friday.²⁸ By noon, snowfall that began in the morning got heavier and the accompanying persistent high winds created whiteout conditions across the region, with NWS describing conditions as “zero visibility.”²⁹ Whiteout conditions, which make it extremely dangerous to drive due to low visibility and slick roads, can quickly cause disorientation for motorists and pedestrians alike. These sustained unprecedented conditions hindered response. Snowfall surpassed the 2022-2023 winter season’s most recent daily snowfall record of 21.5 inches that was occurred during the November 2022 snowstorm.

Saturday, December 24, 2022

During the day, the narrow band of lake-effect snow moved north of Erie County, which created periods of relatively lower snow accumulation in Buffalo. The snow band returned south to its original position around 7:00pm that evening. Blizzard conditions, as measured at Buffalo-Niagara International Airport, officially ended around 10:00pm Saturday evening as both the rate of snowfall slowed, and the wind speed reduced to 20 to 30 mph. According to NWS, blizzard conditions at the Buffalo Airport lasted approximately 37 consecutive hours.³⁰

Sunday, December 25, 2022

As of 7:55am on Sunday, the blizzard warning was no longer in effect for the WNY region.³¹ However, the band of lake-effect snow remained over Buffalo, causing variable rates of snowfall, but at rates less than during the peak of the blizzard.³² Wind speeds continued to be 20 to 30 mph, topping around 40 mph at times on Sunday.³³

December 26 – 30, 2022

The storm slowly began to subside beginning Monday, December 26 and would take the rest of that week to dissipate. Moderate to heavy snow fall continued through Monday.³⁴ Through 11:00am on Tuesday, peak wind gusts hit 20 to 25 mph, though as the day progressed conditions started to improve.³⁵ This reduction in severity provided the state with an opportunity to engage in snow removal operations, increasing mobility across the region. The rate of snowfall gradually reduced throughout the day and would officially end around 7:00pm. Snow continued to melt through Saturday, December 30 and was mostly cleared by Sunday, December 31.

What is NYS Mesonet?

New York State Mesonet is a network of environmental monitoring stations operated by UAlbany. The network consists of 126 weather stations positioned across New York that monitor and measure temperature, humidity, windspeed and direction, pressure, solar radiation, snow depth, and soil information. NYS Mesonet collects and processes environmental data in five-minute intervals.

²⁵ (Bassil and Stutstrim 2023)

²⁶ (Ibid)

²⁷ (Ibid)

²⁸ (Ibid)

²⁹ (NOAA: National Weather Service 2022)

³⁰ (National Weather Service 2023)

³¹ (Becker, Besecker and O'Brien 2022)

³² (Bassill and Stutsrim 2023)

³³ (Ibid)

³⁴ (Ibid)

³⁵ (Ibid)

IV. State Agency Preparation

The State's emergency response network is made up of numerous State agencies. These entities played an integral role in the response to the Blizzard of '22. As the lead coordinating agency, DHSES had various offices that supported the response, including the Office of Fire Prevention and Control (OFPC), the Office of Interoperable and Emergency Communication (OIEC), the Office of Emergency Management (OEM), and the Public Information Office (PIO). Partner agencies that played significant roles included the New York State Department of Transportation (NYSDOT), the New York State Police (NYSP), New York State Thruway Authority (NYSTA), and the National Guard. The policies, protocols, and resources that guided and enabled the actions of involved State agencies are introduced in this chapter.

The State and its response partners, by necessity of emergency management, manage an agile and adaptable response as situations unfold quickly and require operational pivots. As the weather conditions intensified, the State activated different resources in support of changing operational needs. Two primary shifts in the severity of weather conditions occurred that required adaptation from the State. The first major shift occurred on Thursday, December 22, as the NWS upgraded the winter storm watch to a blizzard warning, and severe conditions were forecasted to include high winds and prolonged snowfall. The second shift occurred from Monday, December 26 into Tuesday, December 27, as inclement conditions began to cease and dissipate, allowing the State to fully operationalize resources as necessary.

A. State Preparation and Response Structure

State assistance is meant to be supplementary to local emergency response. This is in line with Article 2-B of New York State Executive Law³⁶, affirming that the State anticipates that emergency response begins with and is driven by local authorities. Once an incident elevates beyond a municipality's capacity to manage alone, DHSES OEM coordinates resources and establishes a plan of action tailored to the situation. These activities can come together quickly as DHSES OEM maintains a "readiness posture," where assets are perpetually prepared for immediate effective response to emergencies and disasters.³⁷ To facilitate coordination and communication with localities during an incident, DHSES OEM leverages the State Emergency Operations Center (SEOC) as the centralized location for State emergency response activities and operations. The SEOC is headquartered at the State Office of Emergency Management in Albany, New York.

State emergency managers typically use the National Incident Management System (NIMS), which is a suggested framework developed by the Federal Emergency Management Agency (FEMA) for the command structure of Emergency Operation Centers (EOC), as well as associated response initiatives. The standardized operating procedures outlined within NIMS are not mandatory nor definitive, but still detail commonly included command staff positions such as EOC Director, and various sections organized by function (Admin, Finance, etc.), which may be included dependent on situational needs. Following the guidance of NIMS, DHSES makes use of a "unified command" structure for its SEOC. This was the case during the Blizzard of '22, where participating agencies made decisions regarding mission prioritization in concert under this governance model. The coordinating mechanisms used to assign responsibility to the various State agencies are known as "Emergency Support Functions" (ESFs). Each ESF provides guidance for what State agencies should take lead in various functions, typically looking to that State agency for prioritization of work within their jurisdiction. However, in the Blizzard of '22, many instances of decision-making authority came from above the ESF level. Additionally, State agencies collaborated on other ad-hoc tasks and assignments.

Within the unified command governance principle of NIMS, the State uses a Comprehensive Emergency Management Plan (CEMP) to establish specific emergency responses. A CEMP is a framework used by governments that can provide direction for the coordination of resources and is an overarching concept of operations for emergencies. The State's CEMP includes several annexes comprised of ESFs, Functional Support protocols, and Hazard-Specific protocols, which are discussed in more detail later in this report. Hazard-Specific protocols address how to coordinate emergency response by the type of incident (such as coastal storms or hazardous materials). Notably, there is no annex chapter that specifically covers blizzards. For more on the NYS CEMP, see "Appendix Section F. Notable CEMP Components".

³⁶ (New York State Executive Law Article 2-B § 20)

³⁷ (DHSES 2021)

B. SWC and SEOC Operations

DHSES maintains staff members in both central offices in Albany and regional offices throughout New York to help monitor, coordinate, and manage the State's emergency response efforts. DHSES OEM's State Watch Center (SWC) in Albany is constantly monitoring conditions around the State and sharing critical updates with appropriate agencies to aid them in decision making. SWC operators distribute information on emergencies that can include incidents like fires, infrastructure disasters, or chemical hazards. The SWC also maintains regular communication with federal disaster response organizations.

To monitor weather conditions, SWC operators receive daily briefings from NWS and subsequently send out situational weather reports twice a day to State stakeholders. While SWC does not function as a decision-making entity, it plays an essential role during incidents as its operators report on noticeable trends or other indicators to supervisors who then triage alerts and issue warnings when necessary. In response to a specific incident, the SWC is responsible for relaying to appropriate State agencies that a decision to activate the SEOC in Albany has been made.

The SEOC is staffed by DHSES personnel who, in steady-state (or non-emergency) operations, work in various offices within DHSES but are called into the SEOC in Albany during an activation. The SEOC is only activated during an incident and has four levels of activation based on factors such as scope of the emergency and effort needed to effectively respond.³⁸

Discussion of activating the SEOC during the Blizzard of '22 began Tuesday, December 20, as SWC personnel received briefings from NWS signaling the possibility of a major storm. Activation of the SEOC first occurred on the evening of Thursday, December 22, and opened on Friday morning, December 23. It was at this point that there was a change in the forecast and a recognition that, while the effects of the storm would be statewide, WNY would be hit the hardest with sustained blizzard conditions throughout the holiday weekend. NWS also upgraded the previously issued Winter Storm Watch to a Blizzard Warning at around 5:00am on Thursday morning. In response, Governor Hochul declared on Thursday evening that a State of Emergency for New York would begin at 6:00am Friday morning in anticipation of these hazardous conditions.³⁹

The timing of the storm's increasing severity played a key role in the ultimate staffing levels of the SEOC. Another complicating factor of the storm response was the Christmas Holiday falling during the storm's escalation. Staff members within DHSES noted how many employees had already made plans for the upcoming holiday and were not initially available to come in. Nevertheless, all positions and responsibilities were covered by the time the blizzard hit Buffalo.

C. Preparation and Response Frameworks and Guidance

To facilitate effective coordination with multiple State agencies, New York uses ESFs. These documents are annexed to the State's CEMP and provide guidance for a standardized government response effort during disasters. These ESF annexes guide the State in coordinating the efforts of different organizations and ensure that resources are used efficiently. While there are several ESFs, this report highlights #1, #5, and #15, although others were additionally activated to respond during this event. These three ESFs are highlighted as they were the most cited in key stakeholder interviews and thus are most relevant for the scope of this AAR.

During the Blizzard of '22, an essential task led by NYSDOT was keeping the roadways passable to the extent practical. ESF #1 guidance also established the tasks of supporting emergency response by providing assisting other government agencies, non-governmental organizations (NGOs), and private sector businesses in the management of transportation infrastructure.⁴⁰

As the coordinating agency for ESF #5: "Information and Planning," DHSES OEM maintained "continuous data and information collection and analysis to have accurate and up to date situational awareness."⁴¹ ESF #15: "External Affairs" discusses communicating the efforts of government coordination to the public, especially as it concerns infrastructure and is discussed in greater detail later in the Threat Awareness Messaging chapter.

³⁸ (NYS Disaster Preparedness Commission 2023)

³⁹ (Press Office for the Governor of New York 2022)

⁴⁰ (FEMA 2008)

⁴¹ (DHSES 2023)

All ESFs require clear and frequent communication among partner agencies and organizations, and if this coordination is not well-managed, it may lead to duplication of efforts, confusion, and inefficiencies in the response effort.

Of the listed agencies included in these ESFs, integral partners for statewide response were DHSES, NYSDOT, NYSTA, and NYSP. Given the diversity of potential hazards, these agencies' efforts were supported by other entities like New York State Department of Public Service (DPS), which provided insight on how the State's utility infrastructure was planning to respond. The downstate local transit system, Metropolitan Transportation Authority (MTA) Bridges and Tunnels, also provided support by implementing "soft" travel bans on empty tractor trailers and tandem trucks on their system. Tactically, the State's preparation for the storm was centered on three central objectives: ensuring resiliency on the roads (i.e., keeping them clear); moving the right equipment to proper staging areas; and engaging with county emergency personnel to share critical information.

The State prepared for the storm by getting the right equipment and personnel in strategic positions across the State. For example, DHSES started to pre-stage equipment in WNY to help mitigate the forecasted impacts of the storm. This included sending sandbags to the Coast Guard to protect against flooding along Lake Erie, while also sharing chainsaws to clear downed trees and generators with Erie County. In terms of information sharing, DHSES OEM staff members engaged local emergency managers in Erie County and beyond to provide updates on the potential impacts of the storm and to help emergency response workers identify and address resource needs. Given the potential conditions of the roads due to the forecasted weather, NYSDOT and NYSTA focused on keeping the roads clear. To make this happen, NYSDOT sustained a 24/7 emergency operation cycle involving preparation of "cut and toss" crews to remove downed trees and other hazards off the roads. This effort was supported by the Department of Environmental Conservation (NYSDEC) and New York State Office of Parks, Recreation and Historic Preservation (OPRHP), which both put additional staff members on standby. NYSTA planned a commercial vehicle ban to begin at 6:00am on Friday in WNY. NYSTA and NYSP additionally worked to turn away vehicles at the PA-NY border to prevent drivers from entering New York State roadways, which would have added to the challenge and stranded motorists.

D. Internal Coordination Tools

The State established a reporting and internal communications framework to keep partner agencies engaged throughout the response effort. This included briefings that would take place multiple times a day, commissioner calls, and broader multi-agency coordination calls to monitor progress on operational priorities and objectives.

To communicate effectively within the SEOC, there were both formal and informal communication channels. The physical proximity of agency representatives in the SEOC allowed representatives to communicate directly during the storm. Staff members would "walk across the room" to send requests and move assets. Telephone and email were similarly used with great frequency to maintain situational awareness with the local EOC in Erie County and other organizations who did not have representation physically present at the SEOC.

For formal communication and coordination on preparedness activities, Multi-Agency Coordination (MAC) calls were used. These calls were coordinated through DHSES OEM and were a series of recurring phone calls with the lead response agencies. These calls were held twice a day in the SEOC with the various State agencies that had been activated and were used to set objectives, coordinate efforts, and to provide timely updates to the broader group. MAC calls were critical in the time leading up to the storm as they supported increased situational awareness as the intensity of the storm became better understood. As conditions worsened, these calls helped guide the response effort. When coordinating its response activities, NYSDOT used a series of scheduled calls. In addition to participating in the daily MAC calls, NYSDOT held daily calls including at least two internal logistics calls, two Region 5 calls, and multiple Buffalo Task Force team calls. A map of NYSDOT regions can be found in "Appendix Section B. Maps".

E. Technology

Another formal coordination tool used to communicate with the SEOC was New York Responds (NYR), a software platform that provides a centralized location for local and State administrators to share data and track incident-specific information during emergencies. Additionally, requests for resources, reports, and directives can be made within the NYR system and can be routed directly to others in the NYR network. Both licenses and

training for the NYR system are offered and conducted through DHSES OEM at no cost to partner agencies and counties. The target audience includes DHSES staff, those who serve as county emergency managers, and other representatives from local partners and State agencies. These trainings typically focus on helping participants understand EOC information flows and managing requests (referred to as “calls”) within the system. To help emergency managers increase their proficiency with NYR, DHSES OEM provides training monthly and responds to special requests by specific agencies or counties, time permitting. The types of training can include “just-in-time” training and “process briefings”, designed to help emergency personnel with managing and routing requests. Both types of trainings are typically provided on an as needed basis. OEM also provides a “beyond the basics” training, which is offered periodically. In addition to these recurring exercises, OEM offers other types of emergency response training (e.g., EOC overview), that also include an introduction to the system. The Division’s learning management system (LMS) logs attendance and provides further insight, should an individual take a specific training more than once. NYR training is required for OEM employees and is strongly encouraged for other entities within the Division.

While DHSES and State agencies used NYR in the Blizzard of ’22 for emergency management coordination, Erie County used a distinct and older version of the software called Disaster Local Area Network (DLAN) for the same purpose. Even though DLAN and NYR have similar features and can interface with each other, there were still usability challenges for response staff. While personnel in the SEOC had previously received NYR training, the system can be technically challenging for users who had not used the system recently. During interviews with key stakeholders, it emerged that some initial difficulties also came from local personnel’s unfamiliarity with the system in a high-stress environment, resulting in a lack of resource requests to the State. Because of this, the State lacked critical information on the operating environment and emergency management landscape in WNY for support missions taking place on Friday, December 23, within the context of the early phases of this storm. Without this information, the State cannot effectively prepare, plan, and identify which resources should be mobilized, which delayed the delivery of assistance and weakened the State’s ability to provide robust and timely services during an emergency. Additionally, neither system is intuitive and some users of DLAN at the County level were not aware of the need to connect DLAN to NYR during the blizzard, nor the protocols necessary to accomplish that step. Without a manual “push” of DLAN requests into the NYR system, the State did not easily have insight into requests being handled by the County. This created initial confusion around the current status of requests, whether all requests were actually present and visible in the system, and which requests were received, assigned, or already being worked on.

In addition to local administrators facing challenges at the County EOC with how DLAN interfaced with NYR, WNY hospitals also experienced issues with the software. While they do not use DLAN directly, they can add messages to the system through personnel in the County EOC. The hospitals were able to send in requests via email that would then be entered in DLAN for them. The hospitals had no insight into whether their requests were being worked on since they did not have direct access to DLAN. This led the hospital system to initiate communications outside this channel and either make calls to receive more information on the status of their requests or even reach out to the State directly to assist.

The experience with the two software systems highlighted the vital nature of established internal communication protocols, reinforcing their necessity in conjunction with ESFs to maximize understanding and efficiency during an incident. See “Appendix Section D. Process Flows”.

F. How the State Prepared for the Storm

During the Storm of ’22, State emergency managers quickly organized to support WNY. The State successfully utilized the framework introduced in the CEMP to ensure that the right stakeholders were engaged throughout the response. This process helped the State establish priorities, design operational tactics, maintain situational awareness, and deliver critical information to the public. Examples of successful utilization of CEMP and ESF guidance were seen in NYSDOT’s enlisting the assistance of NYSDEC for cut and toss teams under ESF #1, and in NYSP’s leadership to direct task forces with NYSDOT to rescue stranded motorists from State roads while escorting National Grid personnel to appropriate locations for power restoration efforts.

Despite these successes, emergency managers could have benefited from context-specific guidance given the atypical weather conditions. The State did pre-position several resources but could have navigated the challenge of this preparation better with a blizzard-specific annex in the CEMP. Sustained lake-effect snow during a prolonged blizzard complicated response efforts and subsequently paralyzed deployment temporarily.

Assets were moved appropriately, but the State did not anticipate having to slow emergency response activities due to this mobility challenge. For emergency managers, this understandably introduced some friction between the expectations of a quick response, and the reality of an initial lack of proper resources due to limited mobility. For example, to fulfill the operational requirements set by ESF #1, OEM worked to deploy Utility Task Vehicles (UTVs) and any other practical vehicle that could be found in place of the snowmobiles that were requested.

Therefore, there is an opportunity to formalize an agreed upon set of policies and procedures to guide coordination efforts in situations where critical resources cannot reach their primary destination. By doing so, leadership will reduce operational friction in similarly severe storms, by encouraging teams to follow pre-existing protocols, designed with a unique set of restrictions in mind.

V. Threat Awareness Messaging

To prepare for this storm, the State pulled together a whole-of-government approach to leverage the diverse skill sets and expertise to mitigate the potential impacts. This effort required intentional coordination across multiple stakeholders to ensure alignment and execution. In concert with these coordination efforts, engagement with the public was pivotal. Emergency messages needed to be timely, accurate, and informative to maintain public safety and to help citizens effectively understand the risk. This chapter discusses these efforts.

During the Blizzard of '22, the State leveraged traditional media (i.e., television and radio) and official social media accounts to keep the public informed. This included a presence on local news through a series of interviews to convey the message of statewide potential hazards to multiple communities. Several other entities also helped raise awareness of the coming threat of the storm. These communication partners used a variety of platforms. Key public information stakeholders for this storm included:

- American Red Cross
- Border Crossing Agencies
- Buffalo Airport
- Buffalo Police
- City of Albany
- City of Buffalo
- DHSES
- Erie County
- NYS Governor's Office
- Niagara International Transportation Technology Coalition (NITTEC)
- NJ OEM
- NWS
- NYS DOT
- NYS Office of Mental Health (OMH)
- NYSP
- NYSTA
- PA State Police
- Peace Bridge Authority
- Pennsylvania DOT (PENNDOT)
- TRANSCOM
- Trucking Association of New York (TANY)

This chapter also highlights select public communications that the State published during the preparation, response, and recovery periods of the blizzard. This chapter does not consider the distribution and reach of a given message, but it does compare messages to FEMA's communications framework for effective alerts and warnings for the purpose of assessing the potential efficacy of messaging campaigns.

A. Communications Strategy

During an emergency, critical messages are coordinated and delivered through ESF #15: “External Affairs.” This support function activates when an incident requires a cross-agency public response or when the SEOC activates.⁴² DHSES is responsible for coordinating and delivering accurate and timely information to the public and media through its Office of External Affairs (OEA). Once the approach for addressing a particular incident is developed, the OEA is the central coordinating entity for finalizing and distributing a notification. To that end, the OEA can leverage a diverse set of communication tools and channels to deliver messages. Per ESF #15, the State can communicate via:

- Press releases
- Social media posts
- Media briefings
- Press releases and social media posts translated into multiple languages
- Integrated Public Alert and Warning System (IPAWS)
- Public notices issued through NY-Alert or any other State public notice system
- Prepared materials (flyers, fact sheets, brochures, etc.)
- Public service announcements
- Briefing packages for media briefings
- 511NY

Diverse methods for message delivery are important because some people may have unique needs when receiving emergency messages. According to the NYS Digital Equity Portal, about 17% of households in WNY do not have a broadband internet connection.⁴³ It is important to use multiple channels for emergency messaging, as households without internet connection may not receive these messages otherwise. DHSES made efforts to reach these households by sharing information on a wide array of non-digital channels, including television and radio.

B. Pre-Storm Messaging

On Wednesday, December 21, NWS reported that the storm headed towards Buffalo could be “once-in-a-generational storm” with high-speed winds over 75 mph.⁴⁴ As such, OEA began to incorporate severe weather advisories and updates into its public communications. In addition to echoing NWS weather reporting, the DHSES messages also provided winter weather safety tips. A pre-storm message stated, “a significant storm system will impact New York Thursday through the holiday weekend.” This message continued with a direct ask of the public to “plan ahead and be prepared for inclement weather if [you’re] traveling.” During the week of December 19, the Governor and DHSES Commissioner also incorporated messaging about the storm into several local news station interviews. The subsequent messages incorporated in news station interviews were explicit in their warning of the need to shelter in place once the storm hit. On December 21, the Governor conducted interviews on the statewide Spectrum News channel, the local Buffalo channel WIVB, and the NYC channel 1010 WINS. That same day, the DHSES Commissioner conducted interviews with Buffalo’s WKBW, and NYC’s WABC and NY1. During these interviews, the Governor and DHSES Commissioner provided winter weather safety tips and stressed the importance of preparing for inclement weather. Throughout these conversations, executives mentioned the potentially significant impacts of the incoming storm and stressed the importance of following local guidance to stay safe.

Around 5:00am on Thursday, December 22, NWS Buffalo upgraded the winter storm watch to a blizzard warning. NWS upgrades a watch to a warning based on the degree of certainty that the condition will occur.⁴⁵ A winter storm watch means the public should be aware there is a possibility that a condition could occur while a blizzard warning means the blizzard is either imminent or already occurring.⁴⁶ As seen in Figure 1, NWS Buffalo reported on Twitter that they expected possible blizzard conditions in Buffalo to last approximately 30 hours, with peak wind speeds that could reach approximately 70 mph. Additionally, that message stated that the Buffalo region was expected to receive one to three feet of snow.⁴⁷

⁴² (New York State Disaster Preparedness Commission 2023)

⁴³ (Bunny 2021)

⁴⁴ (Bassill and Stutsrim 2023)

⁴⁵ (NOAA: National Weather Service 2023)

⁴⁶ (Federal Emergency Management Agency 2014)

⁴⁷ (National Weather Service Buffalo 2022)



Figure 1: NWS Buffalo Tweet from Dec 22, 2022

Government officials and agencies across the State used their social media platforms to echo concern and spread awareness about the pending storm as well. For example, NYSDOT and NYSTA distributed frequent public communications pertinent to government response. Tweets from NYSDOT and NYSTA typically included details on dangerous road conditions and guidance that people should avoid driving if possible. In a review of select public communications, key messages were found to have clear locations and areas of impact (e.g., Erie County, Buffalo, local roads, I-90 to PA border), warning sources (e.g., DHSES, NYSDOT, NYSTA) and likelihoods (i.e., the probability a condition will occur), which are elements of the FEMA effective alerts framework. Most messages from these partners contained language regarding specific hazards occurring on the roads because of the storm.

Messages from these partners were also designed and shared with a targeted audience as necessary. For example, NYSDOT developed specific messaging to share with trucking associations to inform their members of road and weather updates. Both NYSDOT and NYSTA utilized digital variable-message signs (VMS) along roads and the Thruway to alert drivers of the incoming conditions and possible hazards. They also utilized 511NY, a telephone and web service available 24/7 and developed by NYSDOT, to provide information on transportation services and conditions in New York State.⁴⁸ VMS and 511NY are useful tools for providing drivers with important updates on events that will impact travel. VMS are typically activated by official severe weather warnings, not just advisories or watches. When an activation occurs by a severe weather warning trigger, there are set pre-determined messages used by the agency such as “HIGH WIND WARNING.”⁴⁹ However, appropriate NYSDOT staff can choose to activate them for advisories or watches if deemed necessary.⁵⁰ NYSDOT and NYSTA used VMS and 511NY before, during, and after the storm. While effective tools both pre- and post-storm, VMS were difficult to see during low visibility conditions. Figure 2 is an example of a VMS posted by the NYSTA for a high wind warning.



Figure 2: NYSTA Tweet from Dec 22, 2022

C. Coordinated Storm Messaging and Road Closures

Conditions worsened in WNY much faster than anticipated, requiring attention to shift to that region. In response, several roads in and leading to WNY were closed. Throughout the storm, DHSES worked with other State and local partners to coordinate public communications to push out critical messages. Elected and appointed officials contributed by sharing firsthand accounts of the complex and severe hazards impacting the WNY region.

By December 22, the State started to focus attention on the winter storm in WNY. A key focus of messages at

⁴⁸ (511NY 2016)

⁴⁹ (New York State Department of Transportation 2018)

⁵⁰ (Ibid)

this point was telling the public to stay off the roads. As seen in Figure 2, at 7:10am, the NYSTA account posted a travel alert, informing the public of the commercial vehicle ban that would be in effect along I-90 from exit 46 (Henrietta) to the PA border, and on I-190 until further notice. This travel ban was announced in the Governor's press conference the same day. In addition to these public announcements, NYSDOT and DHSES also informed trucking associations of the incoming ban.

On December 23, new messages from the DHSES social media accounts included insights on how to properly use generators and how to heat a home when the power goes out. As seen in Figure 6, which is reviewed in more detail later in this report, the NYSTA Twitter account shared a message at 11:37am stating that road conditions were bad, so the public should "please use extreme caution if traveling the WNY region" and that drivers should "stay off the roads."⁵¹ Additionally, the Governor's office issued a press release at 11:46pm which announced a National Guard deployment to the region. This message was accompanied by a tweet stating, "New Yorkers are experiencing a life threatening and dangerous winter storm" to convey the seriousness of the situation.

On December 24, DHSES continued to keep the public informed through their social media channels and traditional media. Given the intensity of the storm, the messages became more direct and were focused on maintaining public safety while also illustrating the State's response initiatives by highlighting efforts such as snow removal operations. Messages aimed to keep people off the roads and inside their homes in WNY. These messages used descriptive phrases like "high winds," "low visibility," "extreme cold temperatures," and "historic winter storm" to communicate how uniquely dangerous this storm was.

Keeping the public informed continued to be a strategic priority on December 25. The State provided updates on the response through traditional media, social media, and press releases while outlining the regional impacts as the "historic winter storm" continued to affect WNY. People were encouraged to stay in their homes and to avoid travel as the inclement weather continued to hit the region. Given the prolonged nature of the emergency, officials also shared guidance on remaining safe under these conditions.

A key tool for public communications throughout the storm timeline was press conferences. Both the Governor and DHSES Commissioner took part in regular press conferences, before, during, and after the storm, that informed the public on the State's storm response activities and shared safety information for weathering the sustained conditions. While a press conference is publicly available, the tool's main audience is news organizations who distill the 20 to 30 minutes of information into digestible segments to inform a more general audience. These press conferences were collaborative efforts between the Governor, DHSES Commissioner, NYSDOT Commissioner, NYSTA Interim Executive Director, and the NYSP Superintendent, with each person attending whenever possible to provide an update on interagency operations. For the State, press conferences (and accompanying press releases) were one of the primary vehicles for providing a holistic view of the storm's response, wherein local news could share the most critical information for residents.

D. Post-Blizzard Messaging

On Sunday, the focus of the State's messaging moved from increasing threat awareness to outlining the State's response actions while continuing to encourage residents in the hardest hit areas to stay home – even as conditions improved.

In a press release on Monday, December 26, the Governor noted the State's request for a Federal Emergency Declaration to facilitate the delivery of immediate federal assistance for impacted counties. In a public briefing, Governor Hochul emphasized that residents in WNY should continue avoiding travel since even though conditions were improving, they were expected to continue.⁵²

Tuesday afternoon, snowfall stopped and the forecast for the rest of the week included rising temperatures. Governor Hochul announced the partial reopening of major highways within WNY through a press release while State messages focused on response efforts by State agencies and expressing gratitude to their staff. Notes of gratitude to partner agencies continued for the duration of the week.

⁵¹ (NYSTA Twitter 2022)

⁵² (Office of the Governor of New York 2022)

By December 28, messaging was focused on preparing for the possibility of flooding from precipitation and the snow that had accumulated from the storm. Most of the messages provided information or safety tips in relation to the possibility of flooding later in the week. Although State and Buffalo authorities were preparing for flooding, there were no flooded streets at this point because of the blizzard. Higher water levels were reported for the creeks and Lake Erie, but roadways remained passable. The remainder of messages announced the reopening of all major highways in WNY and included pictures from partner agency recovery activities like snow removal by NYS DOT and stranded car removal by OFPC.

E. Social Media Messaging Efficacy

The State and its partner organizations published many messages throughout the blizzard with the goal of protecting the public by keeping them informed. To accomplish that goal, the State utilized social and traditional media. Having a diverse channel mix for this type of emergency messaging, as directed by ESF #15, was important as it provided the State with an effective forum to share timely, targeted messages directly to a large audience. One measure for assessing the efficacy of these messages is FEMA's framework for effective alerts and warnings.⁵³ This framework suggests that public messages about emergency incidents should address the following components:

- Specific Hazard – What is the hazard and what is in peril?
- Location – Where will the hazard occur?
- Timeframes – When will the hazard occur and for how long?
- Warning source – Is an official and credible source providing the warning?
- Magnitude – What is the level of impact expected from the hazard?
- Likelihood – How likely is the hazard to occur?
- Protective Behavior – What actions should people take to protect themselves?

In an example of meeting FEMA's public communications guidance, DHSES posted a tweet that informs readers that there will be a 'significant' storm that impacts the state from Thursday into the holiday weekend, as seen in Figure 3.

This message advises readers to prepare for bad weather if they plan to travel and provides a link to view more safety tips. The message also shares a timeline breakdown of what conditions were expected and when they were likely to occur. However, missing from this message is a clear warning of the dangers that these conditions pose.

Another example of the State following FEMA's framework is the following tweet from the DHSES Twitter account, as seen in Figure 4. In this message, DHSES informs the public that the State is taking action to prepare for the impacts of the storm. It includes a call to 'stay off the roads' and follow local guidance. It also informs the public that the State is mobilizing a work force to address power outages occurring across the state.

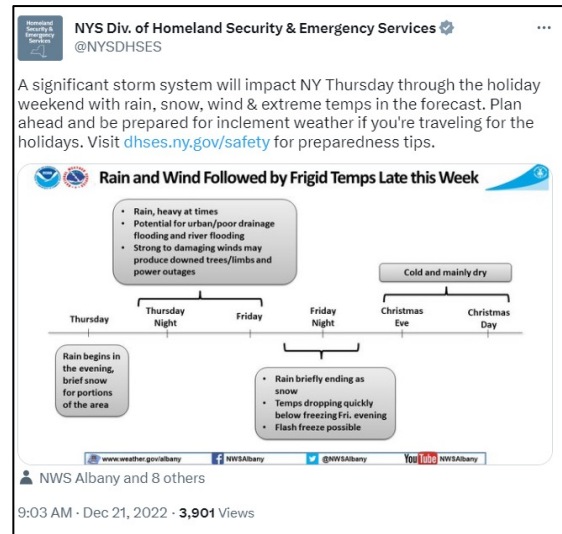


Figure 3. DHSES Tweet on Significant Storm, Dec 21, 2022



Figure 4. DHSES Tweet on Monitoring, Dec 22, 2022

⁵³ (Federal Emergency Management Agency 2014)

While much of the State messaging about this storm addresses these framework components, additional concerns regarding message efficacy are the use of plain but specific language about storm guidance and the specific dangers of not adhering to that guidance. At times, State messaging included stark warnings about the dangerous nature of the blizzard, such as when the Governor made a statement on December 23 calling the winter storm “life-threatening.”

However, warnings about the dangers of the blizzard were not uniformly present in messaging. For example, on December 22 at 10:07am DHSES posted an NWS forecast that included a lengthy description of the possible weather conditions, as seen in Figure 5. But that post did not include clear warnings about the dangers of those conditions and what could happen with prolonged exposure to this weather. Highlighting the possible risk to life and safety could increase the effectiveness of these communications.

The importance of including specific and plain language about life-threatening weather can also be applied to coordinating messages on infrastructure. FEMA’s warning messaging framework highlights the need for specific, consistent information that provides the general context of an incident and how it applies to the public audience. Because multiple entities were responsible for communicating the status of roads throughout the region, communications from individual agencies may have lacked the broader context needed for residents to appropriately plan their travel. For example, in a tweet from December 23, there is a message about the extreme conditions on the roads in WNY, saying to “heed all warnings and stay off the road,” as seen in Figure 6. The clear direction to “stay off the road” is useful to drivers, but a reference to “heed all warnings” could have been enhanced by referring to the specific rules in place at that time.



Figure 5. DHSES Tweet on State Preparations from Dec 23, 2022

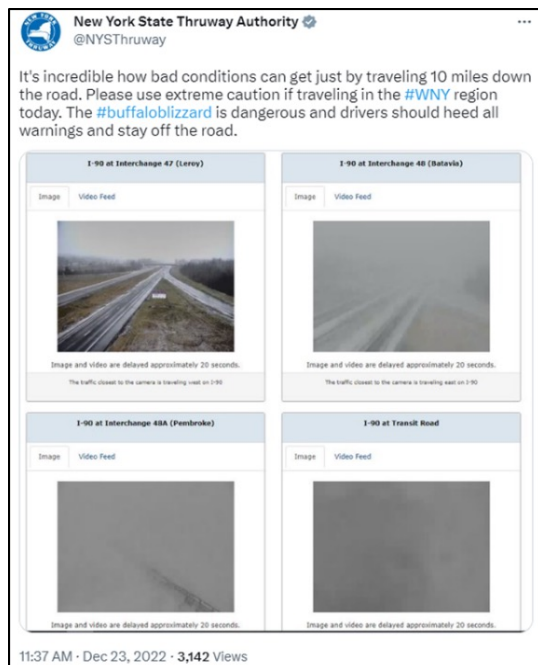


Figure 6. NYSTA Tweet on Staying Off the Road from Dec 23, 2022

While it may not be practical to match every social media post to FEMA’s guidance for communication, during an emergency, authorities should strive for consistent application of FEMA’s warning framework. Most of the State’s agency social media accounts did this throughout the storm. The aforementioned examples are presented to show where improvements could be made and the potential effects of not having met FEMA’s guidance. This framework helps better inform the public of the scope, severity, and risks associated with various hazards. This approach has the added benefit of providing specific actionable information to the public, which can be used to help them stay safe.

Communications should strive to use plain language in every message, so that everyone is clear on the recommended actions to take during an emergency. While mid-storm messaging from DHSES highlighted the severity of the situation, pre-storm warning messages would have been more effective if they incorporated language that communicated the risks of the conditions. Language such as ‘once-in-a-generation storm,’ does not effectively convey the threat to life. Instead, it places the current storm in a context that everyone might not have. Stronger warning messages provide specific details on the unique danger of the storm and illustrate the concrete consequences should the public choose to ignore officials. Drawing on information gleaned from focus groups conducted for the research of this report, the State should prioritize language that communicates the clear life-threatening consequences of exposure to blizzard conditions.

Additionally, the State considered equitable access to information in both the formulation of messages and mechanisms for distribution. According to the City of Buffalo, “approximately 17% of Buffalo residents do not speak English as their primary language.”⁵⁴ Since immigrant and refugee populations can often be disproportionately impacted by disasters, the State should continue developing targeted messages to these communities. To ensure important information was widely available to these audiences, the Governor’s office had their press releases translated into 12 languages other than English: Arabic, Bengali, Chinese, French, Haitian-Creole, Italian, Korean, Polish, Russian, Spanish, Urdu, and Yiddish.

F. Focus Groups

To understand some of the decisions that Buffalo residents made during this emergency, DHSES requested Guidehouse to conduct a series of focus groups in Buffalo. In addition to highlighting the importance of appropriate emergency messaging, these focus groups ground several of the recommendations that come later in this report, centering on the importance of community engagement in the process of designing policies and procedures that can have a significant impact on real people.

Focus groups participants suggest that a socioeconomic divide in the city may have affected individual decisions on storm preparation. Residents noted that committed storm planning can be an extra burden and a particular challenge when coupled with struggles to pay rent and other recurring expenses. This issue was further complicated by the timing of the blizzard. During the holiday season, money is tighter as residents prepare to spend time with family and friends. Holidays can also involve longer hours for manual labor and hospitality service jobs, which can make staying home difficult. Additionally, some of Buffalo’s older housing stock is susceptible to sustained freezing temperatures and electrical outages – further complicating some residents’ ability to wait out the storm. Lastly, these focus group sessions underscored the reality that digital messaging can only go but so far with underserved populations that may not have reliable internet access or who live in homes prone to power outages during storms. As the digital divide is a present factor in Buffalo residents’ lives, the State should continue its utilization of diverse non-digital messaging channels to bridge the gap.

That the people of Buffalo live in a city with a well-earned reputation for snow is a factor that likely contributed to a portion of Buffalo residents who participated in the focus groups having an initial subdued reaction to the approaching storm. Lengthy, cold winters with the near constant possibility of severe weather are not uncommon. Long-term residents of WNY, who were participants of these focus groups and were old enough to recall the Blizzard of ’77, started to prepare sooner than others. Once local weather reports started to use the word “blizzard,” some participants started to elevate their concern. This was the context they needed to start preparing for a much worse event. Comparatively, residents with limited blizzard experience needed a bit more convincing. This is not to imply that the State could have chosen to say “blizzard” before there was a verified blizzard warning for the area. Word choice for what a specific weather condition is called is outside of the State’s control, as NWS must declare a condition a winter storm or blizzard before the State can publish messages to that effect.

As the storm continued, some participants did end up leaving their homes. Each focus group session had participants who specifically went outside to check on or provide aid to neighbors in distress. Buffalo is known as the City of Good Neighbors, and focus group participants did suggest that any degree of emergency messaging would not have deterred this spirit of care. Local and State leaders should acknowledge local identity when crafting strategies to inform the public of emergencies and their associated hazards and consider how this community spirit of altruism can increase individual risk or otherwise affect emergency response activities.

VI. Public Safety Response

Despite the forecast and preparations for the winter storm, the response to it was understandably impeded by the speed, ferocity, and sudden start of a series of complex and life-threatening weather conditions. The greatest challenge in responding to this storm was moving both emergency response resources and personnel to where they needed to be, while navigating extreme weather conditions that started sooner than expected. According to UAlbany’s WCACE, this event “was difficult to forecast even for seasoned meteorologists, so the wide variety of hazards may have placed a significant burden on emergency managers tasked with interpreting forecasts and

⁵⁴ (City of Buffalo, NY 2022)

trying to understand how one weather hazard would impact the ability to respond to another.”⁵⁵ The approximately 37 hours of blizzard conditions complicated and at times physically paralyzed direct response efforts.

With these conditions, even large military equipment could not move well in areas of Erie County. The persistent whiteout conditions and subsequent paralysis of response efforts caused many residents to experience a variety of emergencies. Frozen and inaccessible substations caused thousands of residents across Buffalo to lose power. A dizzying combination of high winds and heavy snow disoriented drivers and disabled many cars. Constant snow drifts trapped residents in their homes and made it impossible for them to get the necessary medical care. The State’s emergency management partners, including local officials, prepared for a statewide, multi-hazard event. While equipment, personnel, and other resources were prepared to help mitigate the worst of the storm, the accelerating storm severity necessitated deployment of appropriate assets on an even shorter timeline.

A. Coordinating the Response Effort

Given the severity of the situation in WNY, the SEOC organized State resources that needed to be directed to the region to facilitate the localized emergency response. Executives in the SEOC addressed requests from localities and focused on the transportation of assets to the WNY region. For example, to keep the roads clear, NYSDOT had to coordinate the logistics of moving snow removal equipment and other resources across the State.

NYSDOT emergency managers activated their Statewide Transportation Information and Coordination Center (STICC) team on Wednesday December 20. During emergencies, STICC is the internal unit at NYSDOT that collects and analyzes information that would impact transportation systems. STICC ensures that NYSDOT’s response operations are guided by the latest weather information, potential transit obstacles, and the proper NYSDOT assets (e.g., vehicles, personnel) that would be needed to respond to the incident. Additional equipment and other materials needed for an emergency response including generators, chainsaws, plows, payloaders, two-track vehicles, and sandbags. These efforts were primarily coordinated through NYR, the system of record for the State’s emergency response. County staff submitted requests to the State through the system, and DHSES personnel would then route requests to the relevant ESFs and its coordinating agency. These requests typically included details like the location, means of transport, and the approximate time and location of the delivery.

In addition to managing the delivery of State assets, DHSES staff managed the introduction of the Intrastate Mutual Aid Program (IMAP) beginning Monday, December 26, which allowed other counties to offer aid. DHSES also leveraged the Emergency Management Assistance Compact (EMAC) which coordinated assistance from other states.

EMAC coordination seemed to have gone well, possibly because it had its own coordinating system, the EMAC Operations System (EOS). Within a relatively short time frame, three states managed to deploy assets to assist Buffalo, complete their assigned missions, and return to their home states. In this instance, EMAC could have been activated as early as December 23, but was not done until December 26. If EMAC was activated to move more incident-specific resources into the region before December 26, the severity of the ongoing blizzard would have impacted their effectiveness –even if the resource gaps between the State and locality were identified earlier. Personnel supporting assets like dump trucks, loaders, snowmobiles, UTVs, and high-axle vehicles, would be subject to the same low-visibility conditions that endangered the response teams already in place.

IMAP was activated on December 26 and allowed for other counties in New York to respond to requests for help and send resources. IMAP is designed to function as a “local-to-local” program where counties can request assistance and resources from each other. Localities are not required to provide resources when an IMAP request is submitted and can decline requests for assets. Although the program typically works among counties, the State can initiate the process on behalf of a county. The Blizzard of ‘22 was the first instance where the State both requested and funded IMAP for a local government. DHSES distributed the request through NYR for resources related to snow removal, particularly dump trucks and loaders, and 14 counties ultimately responded to these IMAP requests. IMAP helped put over 100 dump trucks, dozens of loaders, and other resources including staff and plows on the streets of Buffalo to clear city streets. For a more detailed account of IMAP resources provided during the Blizzard of ‘22, please see “Appendix Section C. Intrastate Mutual Aid Program (IMAP) Support”.

⁵⁵ (Bassill and Stutsrim 2023)

Personnel within DHSES mentioned many IMAP requests were too broad, which resulted in too many items being sent or resources being offered that would not help the emergency response in Buffalo. This may have been due to the State trying to approximate what the localities needed without having exact numbers because neither Erie County nor the City of Buffalo made their own requests formally through IMAP. This could likely be mitigated by requiring requests to be more explicit, listing the quantity of specific items needed, specifying any requirements needed for resources to be helpful in a specific context, and having the counties initiate the request themselves. DHSES personnel also noted that some of the resource and assistance offers had to be turned down because the offering county was too far away, or they no longer needed the items. Since this was the first IMAP deployment in a SEOC activation, it may be helpful to add standardized processes and policies to dictate its use in future emergencies. Additionally, since IMAP resource requests currently rely on a PDF form that needs to be uploaded into NYR, the State should consider if any data collection from IMAP requests could be streamlined or automated.

B. Deteriorating Weather Conditions

In the days leading up to the Blizzard of '22, NYSDOT was establishing response plans, including the identification of personnel needed to manage roads and plowing equipment, the preparation of road salt, and the ongoing maintenance of trucks and plows. NYSDOT staff and equipment were “pre-staged” in accordance with the NYSDOT’s snow and ice emergency operation’s plan. These assets were stored outside of Erie County so they could quickly mobilize and respond if necessary. To effectively respond to the situation on the roads, NYSDOT had already been activated into a 24/7 operating cycle and maintained this emergency response posture into Thursday, December 22.

As rain turned to snow on December 23, snowplows and snow removal teams prepared for plowing activities. These teams began snow removal efforts, but as conditions worsened and the whiteout began, personnel and resources were pulled from the roads as heavy snow, high winds, and low visibility made operations impossible to safely maintain.

In usual circumstances when there is a loss of visibility, NYSDOT plow operators are encouraged to pull over and wait for conditions to improve before resuming operations. However, the persistence and length of the snow squalls forced many plow operators to pause virtually all snowplow functions as visibility was severely limited due to the prolonged conditions. Additionally, several plow operators who had started snow removal efforts got stuck and had to be rescued. Throughout WNY, the sustained presence of lake-effect snow increased the risk of more personnel getting stuck. Snow removal teams in areas outside of the lake-effect snow band around Buffalo were able to continue snow removal efforts. These teams had to wait at designated maintenance sites and staging centers to prepare for an opportunity for snow removal efforts to resume while working to keep deployment lots clear and equipment in a ready state.

C. Road Closures

Leading up to the winter storm, it became apparent that the roads would need specific attention from a cross-functional group of State and local agencies. Heavy precipitation with high winds and freezing temperatures would make the roads impassable for over 37 hours as whiteout conditions moved throughout the region. In response, State and local officials discouraged travel, issuing a series of road closures and travel bans that would last through the weekend.

NYS roadways are a complex, interconnected system of routes that are separately managed by various NYSDOT, NYSTA, County, and City officials. While it is evident that State and local officials were in constant contact throughout the storm regarding important decisions about numerous aspects of emergency response such as search and rescue activities, it is also important to highlight that there were challenges because road closure responsibilities vary due to State or local jurisdiction. Severe weather, combined with the different layers of authority making up the region’s transportation network made the coordination and timing of road closing and opening announcements complex. To address the potential travel disruptions, State and local officials asked the public to be cautious and to stay off the roads in various local news broadcasts. This messaging was supplemented by the introduction of specific travel bans across the State.

On December 22, NYSTA issued a commercial driving ban that was directed by Governor Hochul and set to go into effect at 6:00am Friday morning. At the time, the inclement conditions were forecasted to begin Friday afternoon. The commercial vehicle ban was selected to ensure that large trucks would not put the region's travel system at risk. The ban on commercial vehicles on I-90 began at 6:00am Friday and included a soft closure of parts of the interstate and State highways across WNY.

On the morning of December 23, Erie County and NYSDOT instituted a full driving ban, which went into effect after the commercial ban, at 9:30am. This ban was enacted after inclement conditions appeared in the early morning, instead of Friday afternoon as the State planned for based on Thursday night's forecast. The mid-morning travel ban meant that some drivers were still on the roads or had planned to be on the roads that day – even as the weather quickly deteriorated.

As the weather intensified on Friday December 23, additional travel limitations went into effect in other jurisdictions. By midday, a commercial vehicle ban on I-90 became a ban for all vehicle traffic in WNY. Blizzard conditions in the region made it nearly impossible for civilian vehicles to move safely. State and local officials introduced road closures on roadways in Genesee and several other counties across the State.

Additionally, NYSDOT assisted with the closures of non-Thruway roads and the enforcement of the driving ban along with NYSP by going to roads that had physical gates and closing them to prevent entry. However, where there were roads without physical gates to block entry, non-commercial travelers could still access roads across the region. Some motorists in passenger vehicles became stuck due to the harsh winter conditions as they attempted to travel on unblocked roads. Having a gate barrier at the onramp to every State road may have various acquisition, maintenance, and operational challenges. However, to keep people off the roads in an extreme emergency, the State should consider the feasibility of adding additional barriers on roads that do not already have them, to allow for greater enforcement of travel bans.

The severity and rapid escalation of the weather complicated the management and messaging of road closures. Lake-effect snow bands moved throughout the region and brought intense snow to different areas at various times. Depending on location, areas that were initially passable would yield to disorienting whiteout conditions. The fast-moving nature of the storm complicated the road closure effort as different rules applied to different roads that are close together and linked. The messaging of these bans and closures, while straightforward, could create confusion given their varied reach and timing. While State agencies and their local counterparts were in constant contact with each other, all emergency response partners should keep the interconnected nature of various roads in mind during coordination efforts and share insights on road closure and opening decision-making processes with their partners. This would assist with keeping people off the roads when conditions warranted such efforts.

D. Road Maintenance During the Blizzard

Ahead of the blizzard and while planning for storm response, NYSDOT assessed current resources in Region 5, the NYSDOT region containing Niagara, Erie, Chautauqua, and Cattaraugus Counties – which includes Buffalo. NYSDOT Region 5 communicated needs for equipment and personnel to other NYSDOT regions and the State. Once asset needs were communicated and understood among partners, including DHSES and Erie County, potential gaps in localities' emergency response related to road maintenance were identified. Accordingly, NYSDOT assisted with staging and managing of equipment, closing State roads, resolving issues with downed trees or other road barriers, providing snow clearing assistance, and supporting rescue operations.

Early response activities on December 22 and the morning of December 23 included "cut and toss" teams who were ready to clear downed trees and any other road debris in partnership with teams from NYSDEC and OPRHP. In the days following the height of the storm, NYSDOT also stood up staging areas including one at Buffalo State College. At these areas, NYSDOT staff managed the setup, maintenance, and management of NYSDOT equipment and other resources, including loaders, plows, dump trucks, and their associated operating staff.

By the afternoon of Friday, December 23, as weather deteriorated, Erie County requested additional help with plowing its roads. NYSDOT began providing this assistance, but teams were forced off the road after plows got stuck or could no longer navigate in whiteout conditions. Some NYSDOT teams in areas outside of Erie were able to continue road clearing efforts, including in Genesee County, and moved around as conditions allowed them to continue plowing and snow removal. Once conditions improved in Erie County and NYSDOT teams could resume response and recovery, NYSDOT teams partnered with first responders to rescue people who were trapped in

cars and their homes. At the County level, teams towed vehicles abandoned in the streets and relocated them to lots identified prior to the start of the storm. Additionally, NYSP and utility companies collaborated on a joint effort to plow roads so workers could access grid infrastructure and restore power to residents.

As snow accumulated throughout the weekend, NYSTA teams worked to clear its highways of abandoned cars and snow. These highways experienced fewer issues with plowing because NYSTA was able to continue some snow removal efforts during the whiteout conditions, and because the highways have wider lanes and fewer obstacles, such as parked cars or abandoned equipment. Once NYSTA cleared the highways within their jurisdiction, they were able to divert maintenance crews to work alongside city, county, and NYSDOT teams to clear other roads. Although much of its equipment, including plows, is too large for urban areas and could not assist on Buffalo's city streets, these teams conducted snow loading and hauling operations to physically relocate the snow from the roads and to identify snow removal dump sites in addition to plowing areas with which their equipment could assist.

E. Search and Rescues

Starting Friday, December 23, NYSP coordinated with partners at NYSTA and NYSDOT to execute the search and rescue missions while essential coordination and communication efforts were led by DHSES through the SEOC. NYSP organized the rescue operation by dividing it into six local areas of focus, or missions, which were each named for the general locality assigned across WNY. These included the Batavia, Buffalo, Cheektowaga, Clarence (which also covered the Transit Road Corridor), Genesee (which also included Orleans and Wyoming counties), and Thruway missions. NYSP coordinated with partners at NYSTA and NYSDOT to execute these search and rescue missions. Emergency response partners made great efforts in the harsh blizzard conditions to find civilians in stranded vehicles, rescue them, and bring them to shelter.

The missions were also supported by OFPC, NYSDEC, NYS Park Police, and the National Guard. Troopers in State vehicles paired with NYSTA plow trucks to navigate the otherwise impassable roads covered deep with heavy snow. To determine the prioritization level for a rescue, NYSP would ask individuals calling for help questions related to their road positions, food supply, remaining gas, and medical conditions. For people completely disoriented by the storm, they were asked to turn on their vehicle's GPS if available and report the coordinates from there. These responses were logged in a database, along with the motorist's contact information. Rescue efforts prioritized motorists with no remaining fuel and those with medical conditions.

Typically, motorists would have been rescued and brought to the region's designated warming shelters. However, given the sustained intensity of the blizzard, some stranded motorists were brought to the Buffalo Thruway Maintenance Facility. There, people could warm up and eat Meals Ready to Eat (MREs), which are shelf-stable food rations, which had been stocked in advance of the storm. This effort contributed to reducing the possibility of more casualties directly connected to the storm.

Primary challenges to the search and rescue effort stemmed from the blizzard conditions and snowpack, as NYSP's vehicles were not able to navigate easily with zero visibility and significant snowfall on the road. When available, NYSP's high-axle vehicles were utilized to get through tall snowpack. However, there were a limited number of these vehicles available in NYSP inventory. Despite challenging conditions, the coordination between multiple agencies led to many successful search and rescue efforts. The search and rescue efforts from NYSP ultimately made approximately 425 "saves" during the storm.⁵⁶ In one example of the State effort to rescue people from the storm, one NYSP officer responded to 25 incidents of disabled vehicles in the town of Alabama, NY. The officer escorted the occupants of the vehicles found there out from subzero temperatures and into shelter during the storm.

To augment government response to the storm, the National Guard was engaged when Erie County asked for support on the evening of Friday, December 23. While the request would be fulfilled by Saturday morning, the National Guard's initial response was delayed due to the low visibility conditions that continued through Sunday. This caused some of their members to arrive later Saturday and Sunday morning, which was later than anticipated.

⁵⁶ (Church 2023)

The diverse skill set of the National Guard was an asset to the region, using their expertise to assist with a variety of different response initiatives throughout Buffalo. National Guard members mustered at the Masten Armory in Buffalo, where they prepared equipment and were deployed when possible. Over the course of several days, National Guard members provided support with response initiatives that included food and water distribution to stranded motorists, snow removal, transportation of medical personnel, and general support at warming centers.

As severe conditions overwhelmed residents across WNY, the National Guard provided fatality assistance and recovery operations. As more fatalities were discovered, the National Guard also provided two refrigerated trailers for mortuary affairs support. When weather conditions improved, 75 National Guard members, grouped into teams of three, started to go door to door to homes that still did not have power on Wednesday, December 28, using a list provided by National Grid.

Ultimately, the State's efforts rescued many people from treacherous conditions, with saves attributed to the following agencies as follows: 425 by NYSP; 95 by OFPC; 43 by NYSDEC; and 86 by the National Guard.⁵⁷ NYSDOT and NYSTA also performed many saves throughout the storm as teams of their staff and heavy equipment encountered stranded motorists.

F. Understanding Local Capacity

State emergency managers benefited from a shared set of priorities that were well understood by the key response partners. The State should continue this best practice of staying engaged with localities on emergency preparedness efforts. However, state emergency managers should consider ways to enhance or further develop their approach to collecting and understanding this information. The overarching objective focused on restoring critical infrastructure so that emergency personnel could effectively move throughout the region despite the debilitating conditions. That response effort was supported by a clear understanding of the unique needs in Buffalo.

In emergency management, capacity goes beyond having the right equipment and resources. State and local partners must develop a shared vision of what preparation and response should be in a localized context. For example, Buffalo has narrow city streets with significant street parking, which requires certain snow removal equipment that can maneuver routes. The State understands the challenges and limitations in snow management in Buffalo. As such, the State often anticipates that Buffalo will need support in severe winter weather and therefore makes plans to support plowing and snow clearance accordingly. In a scenario like providing snow plowing assistance during a storm in Buffalo, the State could reach out to other cities and coordinate sharing resources from those municipalities. Such augmentation of service would only be possible with recurring assessments in all counties that help maintain a shared, state-wide vision of capacity, readiness, and emergency service support.

VII. Post-Blizzard Response

A. Road Openings

Due to the severity of the weather and near constant blizzard conditions, roads in the region remained closed for almost five days. To address this, NYSDOT and NYSTA maintenance crews worked around the clock to plow and clear pathways on their respective roads as whiteout conditions cleared. By Tuesday December 27, the region-wide travel ban was reduced to a travel advisory. Notably, the City of Buffalo maintained its travel ban as crews worked to clear the much narrower city streets.

As the weather cleared up, the State announced the reopening of major highways across WNY.⁵⁸ This included:

- Border crossings (i.e., Canada / Pennsylvania)
- NYS Thruway
- I-290
- I-990
- Routes 400 & 219
- NYS Route 5 ("Buffalo Skyway")
- I-190

⁵⁷ (Ibid)

⁵⁸ (Press Office of the Governor of New York 2022)

On the night of Wednesday, December 28, a subsequent press release announced that all major State highways in WNY would be open. Specifically, previously blocked I-190 and State routes 5, 33, and 198 would fully open at midnight. By Thursday morning, State briefings noted that all travel bans had been lifted and all roadways were open and accessible.

The issue of coordination and messaging was re-visited during the re-opening of roads. For example, a public announcement regarding the opening of State roads was published before roadways were accessible and before NYSTA personnel were ready for post-holiday traffic to return. In this case, physical barriers to the roadways were still in place, even after this re-opening announcement was made. While this was an isolated event and was corrected in a matter of hours, this incident created some confusion and can be mitigated in the future by the State's continued communication with government partners. Social media was a key source of information regarding the roads. When this announcement was released prematurely, news spread to residents and across communities quickly as residents were eager to leave their homes after being snowed in for several days.

Other difficulties in coordinating road re-openings stemmed from interconnected decisions that were made across NYSTA, DHSES, NYSDOT, Erie County and the City of Buffalo. In response to this storm, NYSTA re-opened before the local roads in Buffalo had been fully cleared, so executives decided to create a detour for I-190 outside of the city to reduce the inflow of traffic to the city before more streets were cleared. Closures in some shape or form continued throughout the region through Thursday, December 29.

B. Snow Removal

To effectively respond to the unique needs of Buffalo, state and local emergency managers had to utilize creative strategies to rescue residents, restore power, and remove snow. This required creative thinking to leverage available resources to accomplish any of those objectives, including the complex process of removing a considerable amount of snow out of the city. For example, throughout Buffalo, plow teams ran into issues related to the narrowness of city streets and abandoned vehicles. Vehicles cluttered the sides and middle of roads and were difficult to move. Buffalo Department of Public Works (DPW), Erie County, NYSDOT, and other partners had to bring in additional equipment to remove these roadblocks and relocate them to locations around the city where they would not impede snow clearing efforts. The State understands Buffalo's challenges in clearing snow and is prepared to assist with plans to provide this support during extreme winter storms, supplementing city and county efforts.

Buffalo DPW's snow removal efforts first focused on clearing ambulance routes and roads to hospitals so rescued residents or those suffering medical emergencies would be able to receive medical attention. Buffalo DPW's teams then moved on to plowing the most traveled and strategic routes for responders to move around and continue assisting affected residents and restoring critical functions. Equipment used by government teams included plow trucks, dump trucks, high axle vehicles, UTVs, snowmobiles, and loaders. To manage various equipment, position resources strategically, and organize teams for specific missions, staging sites were utilized across the region. Pre-staging of resources was a key component of preparation activities.

To ensure efficient and non-duplicative efforts, the City of Buffalo was divided into three areas of operation. Each region was mapped to specific owners (i.e., city, county, and State officials) to conduct snow removal efforts within their boundaries. Erie County conducted snow plowing and removal efforts in the south region of the city, while the City of Buffalo managed efforts in the center of the city, and the State focused on the north side. During the blizzard, over four feet of snow fell, but high winds created snow drifts that reached seven feet tall and blocked roads, obscured abandoned vehicles and downed trees, creating significant barriers throughout the region. Snow removal teams included both plows and specialty vehicles to push snow aside to create navigable paths. Snow loaders were used to move accumulated snow and ice, and trucks to relocate snow to identified sites for controlled melting.

Another tool that was used to aid the snow removal effort and manage the plethora of contributing entities was a plow mapping software that was introduced by emergency managers. This technology utilized Buffalo's recently rolled out ArcGIS mapping capabilities and reflected which roads were plowed and revealed how clear they were. Developed with NYSDOT during the whiteout, this tool gathered information from the multiple partners who were plowing in the region, an example of problem solving that took place throughout the incident. The tool was used in the local EOC to reflect progress and define missions for the diverse teams who were actively working to remove snow and clear roads. By Thursday, December 29, only three streets in Buffalo were determined to be

impassable, and all streets were declared passable and at least partially cleared by the next day.

Once State highways were cleared, NYSTA was able to divert maintenance crews to work alongside existing city, county, and NYSDOT teams to clear local roads. In addition to Buffalo, Erie County, and NYS teams, plowing efforts were bolstered by the provision of snow removal teams and equipment from other counties and states. Through IMAP, other NYS counties were able to offer assistance and resources, and through EMAC, other states contributed aid beginning early on Tuesday, December 27. Partners would expand to include three states (New Jersey, Ohio, and Pennsylvania), fourteen counties, and numerous municipalities. By Wednesday morning, the State and its partners had reached a total of 146 dump trucks and 73 loaders on the ground, which surpassed the established goal of 120 and 44 respectively. Additional EMAC and mutual aid requests halted at this time and the snow removal mission focused on a goal of clearing at least one 12-foot lane on every street in Buffalo by the end of the Wednesday overnight shift.

Throughout the storm response, NYSDOT coordinated multiple waves of out-of-region resource deployments to Region 5. To effectively leverage these resources, Region 5's team needed to modify their Operational Plans to detail how the specific equipment and personnel would support storm response efforts. By Sunday December 25, NYSDOT had sent a total of 77 staff, including 71 plow truck operators, four supervisors, one assistant manager, one Incident Command System support specialist, 10 plow trucks, four snow blowers, four loaders, 11 skid-steers, and one grader to Region 5. These resources were shared by Regions 1, 2, 3, 4, 6, 8, 9, 10, and the Capital District.

Snow removal efforts continued from the cessation of the whiteout and extreme weather conditions on December 25 through December 31. Diverse partners from around the State and region contributed personnel and equipment, which were instrumental in the clearance of roads. Once Buffalo and Erie County teams no longer needed these assets, the SEOC coordinated the incremental release of out-of-town resources and overall mission demobilization.

C. Power Restoration

During the worst of the storm, over 104,000 customers had lost power statewide, including over 33,000 in Erie County alone. Heavy snow and high winds caused falling trees to bring down power lines, and critical components of substations failed. Although outages were reported city- and region-wide, multiple substations froze over and went offline in Buffalo's East Side, which includes several predominantly black communities. To meet the challenges of restoring power for residents, City officials partnered with the State to coordinate resources through a "multi-agency task force." This task force was organized to address the unique needs in Buffalo, including the white-out blizzard conditions that lasted through Sunday, December 25, and the partnership included NYSP, National Guard, NYSDOT, NYSDEC, OFPC, NYS' Division of Military and Naval Affairs (DMNA), and National Grid.

The condition of roads and the challenge of maneuvering streets because of barriers like abandoned cars and high snow drifts made it difficult to access utility resources, including four critical substations that had frozen over. These restoration efforts were complicated by the paralyzing weather conditions. Key utility partners like National Grid and others were not able to safely travel and access critical infrastructure or households without power. Power was not restored for some Buffalo residents until December 28. Prolonged power outages were particularly burdensome and dangerous for residents during low temperatures, causing the aggravation of existing medical conditions, the spoilage of stocked food, and the inability to cook or otherwise prepare food, as well as creating a situation that resulted in many leaving their homes to search for warmth or provisions.

Prolonged whiteout and poor road conditions delayed power restoration tasks. During the whiteout, emergency personnel, including utility crews, could not move on roadways across the region. Once conditions improved, the

NYS DOT Regional Breakdown

The supporting Regions consist of the following counties:

- 1 Essex, Warren, Saratoga, Washington, Rensselaer, Schenectady, Albany
- 2 Hamilton, Oneida, Madison, Herkimer, Montgomery, Fulton
- 3 Oswego, Onondaga, Cayuga, Seneca, Cortland, Tompkins
- 4 Orleans, Monroe, Wayne, Genesee, Ontario, Livingston, Wyoming
- 6 Allegany, Steuban, Yates, Schuyler, Chemung
- 8 Columbia, Ulster, Dutchess, Putnam, Orange, Rockland, Westchester
- 9 Chenango, Otsego, Schoharie, Delaware, Broome, Tioga, Sullivan
- 10 Nassau, Suffolk

formal task force worked to address power outages. In most power restoration situations, National Grid first clears away debris, including fallen trees and downed wires, and focuses on repairing the infrastructure that supplies the most people, including regional transmission facilities and substations. Efforts then turn to neighborhood-level repairs, including service wires and poles, which, in Buffalo, are often located in backyards and must be reached on foot from parked utility vehicles. However, this concept of power restoration that has been deployed in other situations occurs somewhat in a silo, without accounting for the fact that usual repair processes and times are based on these locations of repair being readily accessible. Since the effects of the storm created a cross-section of challenges, particularly one of navigability, the inter-group task force was vital to the multi-agency effort to help National Grid bring power back online for affected customers.

The task force focused its approach on clearing paths to and from critical infrastructure to allow response teams to execute missions like restoring power to senior apartments. Given the widespread power outages across the region, the Task Force organized five strike teams that consisted of NYSDOT, National Grid and NYSP to address them. Because responders and utility workers were unable to physically reach four critical substations that had frozen over and gone offline during the blizzard, this partnership was tasked with combining abilities to clear snow, navigate road conditions, and deliver the necessary equipment and technicians to the substations. The task force introduced a diverse set of resources to facilitate the response which included specialized personnel, multiple 4x4 vehicles, loaders, UTVs, F250 trucks, and snowmobiles.

Teams identified the areas with the most significant outages and prioritized response to the power infrastructure in those areas. Due to the widespread issue of abandoned cars clogging snow-covered streets, NYSP and NYSDOT utilized front-end loaders to pick cars up and move them off the road so that plows could move through the area. NYSDOT maintenance teams then plowed routes to key locations, including transformers and distribution lines, and National Grid workers followed to gain access to key infrastructure, assess the state of equipment, and make the required repairs. This multi-agency response was critical as it gave utility providers the support necessary to get to the transformers and distribution lines.

VIII. Recommendation Summary

The following recommendations are the result of a thorough analysis of State actions taken during the Blizzard of '22. As several State agencies made significant contributions to these response efforts, the recommendations that follow are applicable to the State as a whole, with key roles to be played by the various entities that make up the entire emergency management and response system. Enhancing the state-wide emergency management function, by building on the learnings from this past winter, is the responsibility of the entities introduced throughout this review. The system cannot improve in isolation. Going forward, state agency partners, along with local officials should work towards an improved state emergency management through intentional communication, better leveraging existing technology, developing a shared understanding of capacity, and encouraging greater cross-agency coordination to create a renewed system that is responsive to the unique needs of communities across the state.

A. Theme One: Communications

The Blizzard of '22 showed that it was critical to have frequent and clear communication internally among responders as well as to the public about evolving situations.

Grow the Subscriber Base for NY-Alert

To augment the State's approach to distributing emergency communications, key response agencies in New York State like DHSES, State Police, and the Department of Transportation should work with the Office of Information Technology Services (ITS) to invest in growing the subscriber base for NY-Alert, which allows an individual to sign up for alerts when an event is impacting or will impact their area. These alerts can be sent to subscribers by phone, email, text, or fax.⁵⁹ The State did not use the system during the storm because officials noted that the subscriber base for the system was low and would therefore be ineffective. While local officials manage emergency communications, there is a benefit to having the state's emergency management network augment those messages, across a variety of channels, once an incident exceeds local capacity. Growing the subscriber base can be supported by the State's emergency partners because each organization has specific, technical expertise that can inform the framing of any campaign designed to advance a state-wide culture of preparedness. For example, DOT can provide perspective on the importance of keeping personal vehicles off the road during severe weather. The public should understand how disabled vehicles can disrupt response efforts. A campaign centered on increasing subscribers could be connected with existing promotions and would underscore the importance of engaging with a designated channel for communicating critical emergency information quickly and with the appropriate level of gravity.

Ensure the Risks Associated with Weather Events are Clearly Communicated

State emergency response entities along with support from NWS and local partners should conduct a comprehensive and coordinated review of key words and language used in public advisories and warnings leading up to and during significant weather events. Public messaging and warnings must be able to communicate life-threatening and severe conditions in a way that is easily understood and incorporated in the decision-making process to ensure individuals are practicing caution and vigilance. Given that focus group members reported varied reactions to terms such as "winter storm" and "blizzard," weather conditions and their potential effects should be communicated in plain language, so all residents have a common understanding of the seriousness of a weather event. Special care should be given to ensuring messages are available in the appropriate languages for Limited English Proficient (LEP) individuals and accessible via a variety of channels for those who do not have regular internet access.

This group of emergency response entities should collaborate to augment existing public awareness campaigns to make sure people are prepared well in advance of any potential emergency for severe weather hazards that are increasing in frequency and severity. This could include producing region-specific videos or radio PSAs centered on citizen and community weather resilience. Preparedness materials should be disseminated in a method that increases individuals' understanding of the "levels" of advisory language used in emergency situations, and how the gradation of warnings should affect the appropriateness of certain actions during the weather event.

⁵⁹ (New York State 2022)

Communicate Government Actions Consistently with All Partners

Actions taken by various levels of government must be communicated in a consistent and easy to understand manner by the public. State emergency response partners should enhance existing avenues for communication between all the responding entities and set clear standards for information sharing and public distribution during actions that involve multiple jurisdictions. For example, when it came to road closures, varying levels of government were responsible for closing different roads. Regardless of which authority closes a road, messaging across State and local partners need to be aligned to avoid creating confusion about the current situation and to provide the public with easy-to-understand instructions to guide their behavior. Similarly, when it came to road openings during the recovery period, State roads leading to Buffalo were ready to open before entrances to the city were cleared. Although this was resolved within a few hours, prior communication on the intent to open main arteries to Buffalo would have been useful.

B. Theme Two: Technology

New York State's emergency response partners use a variety of technology and essential tools to support emergency management and response efforts. During the Blizzard of '22, two of the most important coordinating systems were NYR and DLAN. To improve the existing coordinating tools and technology used by emergency management personnel, recommendations are to:

Ensure the Universal Use of a Single Emergency Response Software for Incident Management in NYS

The State should encourage municipal emergency management agencies and partners to utilize a single emergency management software – the State's existing NYR system. When an incident exceeds a municipality's emergency response capacity, the State's emergency response network needs access to critical information to provide the right level of support. State entities use NYR as the system of record for communicating such information and the state has already made software licenses for NYR available to every county in New York State free of charge. However, some municipalities use other systems that vary in their compatibility with NYR. Having multiple systems creates a degree of friction when key activities are not automatically aligned and uniformly communicated. Additionally, one system prevents the need for emergency response personnel to have to learn multiple systems – and facilitates the creation of a shared, universal understanding of best practices and use cases.

Standardize Local Operations by Enhancing Trainings for NYR, Including More In-Person Trainings

DHSES should increase the delivery of end-user training for the use of NYR as the State-wide incident response system. This training is currently offered online and is specifically designed for emergency response managers. To enhance these offerings, state partners should encourage increased and consistent participation from a broader audience of personnel throughout the year. Where possible, these trainings should be provided with greater frequency with an emphasis on cross-agency engagement, to facilitate the exchange of entity specific knowledge and capabilities. Introducing these training courses to a wider group of staff members who will be involved in supporting a response effort will increase organization-wide familiarity with the system. Additionally, emergency response staff should be encouraged to take recurring refresher courses to confirm their understanding of key processes.

Create Shorter User-Friendly Desk Guides to Supplement Existing Instructional Documentation on the Use of NYR

DHSES should work with local and technology partners to create user-friendly documentation to guide the use of NYR as a universal system. Accessible guides can help users quickly navigate NYR and should detail the proper sequencing of activities critical to understanding and utilizing the system in an emergency. These assets can be used to ensure that emergency managers are utilizing standardized framing, phrasing, and specificity when submitting NYR system requests.

C. Theme Three: Capacity

The emergency response capacity of each municipality in New York varies significantly. Therefore, state response partners must have a working understanding of what each locality can and cannot handle independently to determine when to begin its support. While this group currently uses tools and programs to gain situational awareness about local emergency management capabilities and response initiatives, there are opportunities for enhancement. Recommendations to pursue this improvement are to:

Enhance the CEPA to Assist in Understanding Local Capacity

The State can improve their understanding of local emergency response capabilities using the existing County Emergency Preparedness Assessment (CEPA) process by conducting the review more frequently and thoroughly. CEPA has previously gained national recognition as an innovative emergency management tool, well designed to help State executives better understand local capacity. While the current CEPA gives the State a general idea of risks and capability gaps the localities may face, there is an opportunity to significantly enhance the CEPA process, allowing the State to gain a more robust understanding of what each locality is capable of and where the State may be tasked with assisting. Making the CEPA process more frequent and more thorough would also allow the State to consider a locality's supply of resources that have shorter lifespans such as bottled or canned water as well as evaluate resources needed for emergency response that may have varying asset useful life benchmarks (ULBs) such as snowplows and dump trucks.

Encourage Counties to Seek Local Emergency Management Accreditation

Another way the State can support localities in enhancing their emergency management and response capabilities is by encouraging more counties to obtain certification through the Local Emergency Management accreditation program. To gain accreditation, localities must meet a variety of emergency management standards and best practices. The main benefit of gaining this formal recognition is to ensure State-wide adherence to an agreed upon set of emergency management standards, which improves the overall preparedness levels in New York State. This process would also encourage more collaboration and information sharing between state and local emergency response stakeholders. This program is result of a long-standing partnership between NYSEMA and DHSES and is offered to emergency management offices (EMOs) at every jurisdictional level. However, there are only 18 counties in New York that have this accreditation, a small proportion of the State. While Erie already has this accreditation, all counties can benefit from this program, especially others in WNY.

Develop a Shared Vision of Roles and Responsibilities for Emergency Management with Local Partners

In addition to more effectively reporting information about local capacity and utilizing existing avenues to encourage counties to adopt best practices through the previous recommendations, key emergency response partners should explore how to best assist counties in building their capabilities and enhancing coordination. State agencies that include, but are not limited to organizations like DHSES, State Police, DOT, and the Department of Public Service (DPS), should embark on a collaborative exercise with local governments to understand where they believe the current deficiencies are in their disaster response capabilities, and what the appropriate role is for the State when it comes to supplementing existing capacity, whether that be in training, technology, coordination, or resources. This should result in a shared vision of the appropriate roles of each level of government when it comes to disaster response in New York. New York Executive Law makes it clear that local governments are the primary entities when it comes to responding to disasters and emergencies. The State only supplements these efforts once local capacity is exhausted. But determining how best the State can support local governments should be an exercise done collaboratively with municipal governments.

D. Theme Four: Coordination

The State uses various tools to engage and coordinate with critical stakeholders during emergency response initiatives. During the Blizzard of '22, the severity and swiftness of the conditions, complicated cross-functional coordination efforts. While response objectives are primarily governed by the State's CEMP and supporting ESFs, response partners would benefit from deeper alignment, defined by formalizing certain organizational structures which would allow for a greater shared understanding of key operational tactics driving the response. With formal emergency response structures, emergency managers can further establish official communication channels to share strategies and supporting activities. For example, when the State supported search and rescues and power restoration, there could have been tighter alignment between the organizations supporting both missions to ensure that resources were effectively utilized, and the prioritized efforts were understood across the different entities. Without this insight, other types of emergency operations such as the road clearing efforts, can initially appear to be fragmented. To address this, the State can consider the opportunities below with different agencies, counties, and cities to supplement existing coordination efforts throughout the preparation, response, and recovery phases of emergencies. Focused coordination can help ensure that the environment of response partners have a greater understanding of what their supporting peer organizations are doing.

Draft a Blizzard-Specific Annex for the CEMP to Establish a Consistent Approach and Expectation

The State should include a chapter on blizzards in the Hazard-Specific annex of its CEMP. While the current Hazard-Specific annexes of the CEMP cover a wide variety of hazards that may affect the State, there is no current annex explicitly for blizzards. There is a clear need for this annex as several counties face the increasing possibility of extreme winter weather each year. Creating an annex specifically for blizzards, particularly long-duration blizzards, would allow the State to develop tailored strategies for dealing with a specific set of severe winter weather effects, including heavy snow, lake-effect winds, and whiteout conditions. A major component of this annex will involve establishing which counties and localities are most affected by this hazard, anticipated risks and mitigation strategies, and how the State can better assist them. Enhanced coordination and planning through a distinct, blizzard-specific annex will better equip the State with the necessary tools to mitigate and manage the impact caused by these devastating events.

Conduct Additional Routine Tabletop Exercises Designed to Address Unique Regional Risks and Include Local Participation

In addition to existing tabletop exercises, the State should partner with local government entities to conduct more frequent routine tabletop exercises that are designed to address unique regional risks, including blizzards. These exercises would enhance coordination between various levels of government and allow each regional stakeholder to test out roles and responsibilities outlined in a new blizzard annex in the CEMP. Tabletop exercises are an effective instrument the State and localities can use to test their emergency response capabilities. These exercises are simulations conducted during steady-state operations in a non-threatening environment. They involve bringing together any personnel who might be involved in emergency response and having them act out their roles and responsibilities. Tabletop exercises must include life-like scenarios that demonstrate the unpredictable nature of real disasters.

Consider Staffing Adjustments in the SEOC to Close Information Gaps

State agencies contributing to a response effort should ensure that they have proper representation and subsequently send the appropriate people to the SEOC. Senior level representation in the SEOC during critical incidents can ensure that decision makers and operational staff are present and working in alignment, with the necessary amount of organization-specific information. In addition to operational staff, state agencies involved in emergency response efforts should provide senior-level executives or representatives with the right expertise to help eliminate emergency management information gaps within their organization. Additionally, this will facilitate the effective bi-directional exchange of information between the State's emergency management leadership and response organizations.

IX. Conclusion

The Blizzard of '22 was truly "the perfect storm." DHSES led an emergency response on behalf of the State designed to mitigate the worst of a storm characterized by a devastating combination of gale force winds, heavy snow, and freezing temperatures. This effort required significant cross-agency coordination and constant engagement with different levels of government for several days.

The unique severity of this storm should not go unnoticed. Part of the State received intense blizzard conditions for approximately 37 hours, virtually paralyzing key response initiatives. Given the ongoing reality of climate change, New York State will see a storm like this again. As temperatures stay warmer for longer periods, it will get increasingly difficult for Lake Erie to freeze. This will only intensify the lake-effect snow phenomenon.

Going forward, New York will need to maintain a constant state of readiness, centered on the philosophy of continuous improvement. DHSES and its partners should continue to enhance the State's emergency response infrastructure by improving planning activities, modeling response exercises, and designing community-focused recovery initiatives.

All this can be accomplished through continued engagement with key stakeholders whether they be other agencies, localities, NGOs, the private sector, or everyday citizens. By building on what worked well, and continuing conversations with those affected by this severe weather, the State will design a forward-looking and leading approach to emergency management.

X. APPENDIX

A. Abbreviations

CEMP – Comprehensive Emergency Management Plan
NYSDEC – Department of Environmental Conservation
DHSES – Division of Homeland Security and Emergency Services
DLAN – Disaster Local Area Network
DMNA – Division of Military and Naval Affairs
DPW – Buffalo Department of Public Works
FEMA – Federal Emergency Management Agency
EMAC – Emergency Management Assistance Compact
EMO – Emergency Management Office
EOC – Emergency Operations Center
EOS – EMAC Operations System
ESF – Emergency Support Function
IMAP – Intrastate Mutual Aid Program
IPAWS – Integrated Public Alert and Warning System
ITS – Office of Information Technology Services
LEMAP – Local Emergency Management Accreditation Program
LEP – Limited English Proficient
LMS – Learning Management System
MAC – Multi-Agency Coordination
MREs – Ready-to-eat meals
MTA – Metropolitan Transit Authority
NGO – Non-Governmental Organization
NIMS – National Incident Management System
NITTEC – Niagara International Transportation Technology Coalition
NOAA – National Oceanic and Atmospheric Administration
NWS – National Weather Service
NYR – New York Responds
NYSDOT – New York State Department of Transportation
NYSEMA – New York State Emergency Management Association
NYSP – New York State Police
NYSTA – New York State Thruway Authority
OEA – DHSES Office of External Affairs
OEM – DHSES Office of Emergency Management
OFPC – DHSES Office of Fire Prevention & Control
OIEC – DHSES Office of Interoperable and Emergency Communications
OPRHP – New York State Office of Parks, Recreation, and Historic Preservation
PAPD – Port Authority Police Department
PBA – New York State Police Benevolent Association
PENNDOT – Pennsylvania DOT
PIO – DHSES Public Information Office
SEOC – State Emergency Operations Center
STICC – Statewide Transportation Information and Coordination Center
SWC – State Watch Center
TANY – Trucking Association of New York
ULB – Useful Life Benchmark
UTV – Utility Task Vehicle
VMS – Variable-Message Sign
WCACE – UAlbany’s Weather and Climate Analytics Center of Excellence
WNY – Western New York Region

B. Maps

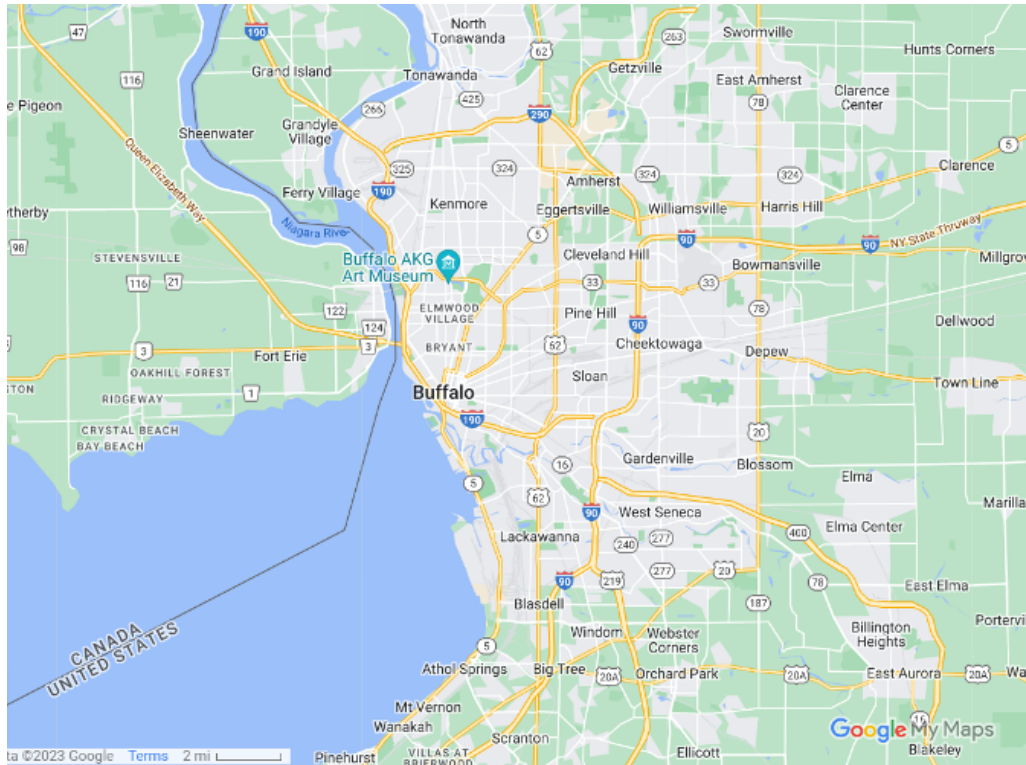


Figure 7. Regional Road Map

NYSDOT Regions

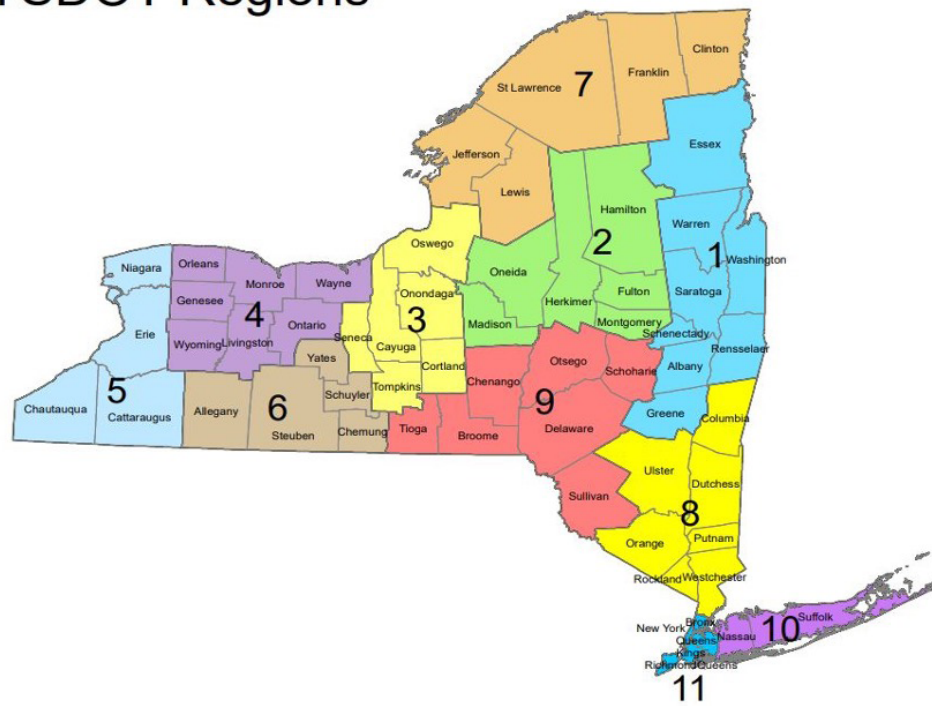


Figure 8: New York State Department of Transportation Region Map

C. Intrastate Mutual Aid Program (IMAP) Support

The following resources were provided for emergency response during the Blizzard of '22.

TOTAL: 346 personnel
TOTAL: 127 dump trucks
TOTAL: 36 loaders
TOTAL: 18 skid steers
TOTAL: 7 plows

Albany County

- 16 personnel
- 15 dump trucks
- 5 plows

Suffolk

- 10 personnel
- 3 dump trucks
- 2 loaders

City of Albany

- 10 personnel
- 4 dump trucks
- 1 loader

Wayne

- 8 personnel
- 3 dump trucks
- 1 loader
- 2 plows

Tompkins

- 8 personnel
- 4 dump trucks
- 1 loader
- 2 plows

Monroe

- 94 personnel
- 27 dump trucks
- 11 loaders
- 2 skid steers

Genesee

- 2 personnel
- 1 dump truck
- 1 loader

City of Syracuse

- 9 personnel
- 6 dump trucks
- 2 loaders

Otsego

- 10 personnel
- 4 dump trucks
- 1 loader

Dutchess

- 8 personnel
- 2 dump trucks
- 1 loader

Ontario

- 5 personnel
- 3 dump trucks
- 1 loader
- 1 skid steer

Nassau

- 18 personnel
- 2 loaders

Oswego

- 6 personnel
- 5 dump trucks
- 1 loader

Westchester

- 4 personnel
- 2 dump trucks

Chemung

- 5 personnel
- 1 dump truck
- 1 loader

D. Process Flows

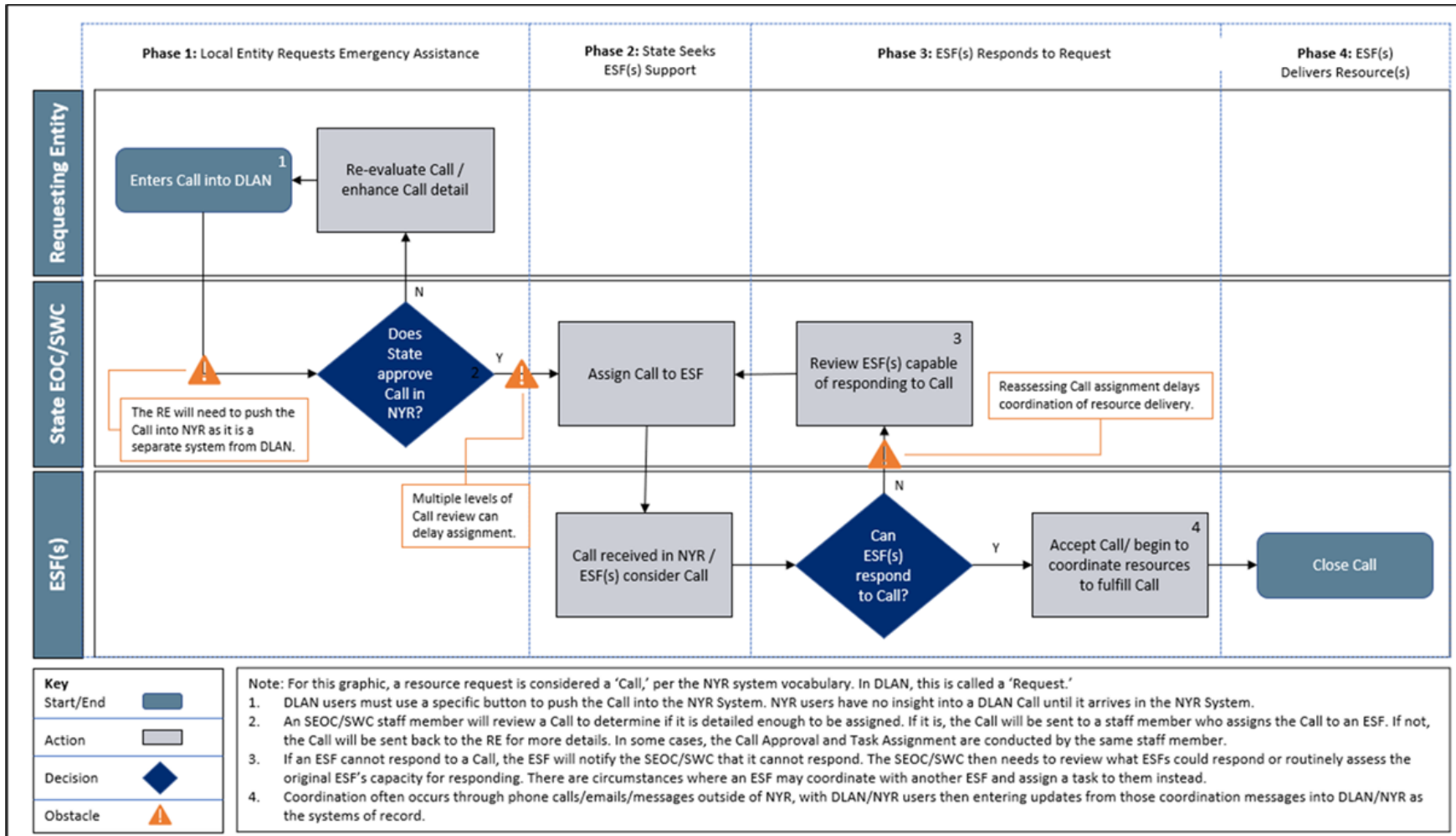


Figure 7. Incident Management System Request Process Overview

E. Public Communications

Pre-Storm Messaging

The following tables contain Public Messages shared by DHSES and the Governor's office during the Pre-Storm period:

Table 2. DHSES/Governor's Office - Public Messages - December 21, 2022

Message Title	Media Type	Time Shared	Views	Description
Winter Storm Warning/Safety	Tweet	9:03am	3,893	Infographic detailing storm system impact over the week
Winter Solstice Safety Tips	Tweet	11:06am	475	GIF celebrating Winter Solstice that includes link to DHSES site for winter weather safety tips and NY-Alert.
Winter Storm/Holiday Travel Safety	Tweet	4:19pm	3,442	Infographic sharing holiday travel safety tips.
WIVB (Buffalo) Interview w/ Governor Hochul	Television	N/A	N/A	Interview on local Buffalo TV station where Governor Hochul factored storm messaging into her responses.
Spectrum News (Statewide) Interview w/ Governor Hochul	Television	N/A	N/A	Interview on statewide TV station where Governor Hochul factored storm messaging into her responses.
WKBW (Buffalo) Interview w/ Commissioner Bray	Television	N/A	N/A	Interview on local Buffalo TV station where Commissioner Bray factored storm messaging into her responses.

Table 3. DHSES/Governor's Office - Public Messages - December 22, 2022

Message Title	Media Type	Time Shared	Views	Description
Storm Monitoring	Tweet	10:07am	18.9k	Image of NWS' forecast for the Albany area with accompanying text that DHSES is monitoring the impending storm.
Flash Flooding Safety	Tweet	3:00pm	551	Shares safety tips to prepare for flash flooding.
Governor Hochul Declares Statewide State of Emergency Ahead of Storm Expected to Impact Holiday Travel Thursday Night Through Monday	Press Release	5:58pm	N/A	Explains the actions the State is taking to prepare for the storm. Includes resource allocations, travel bans & guidance, and winter travel & cold weather safety tips.

Messaging During Storm

The following tables contain Public Messages shared by DHSES and the Governor's office during the Pre-Storm period.

Table 4. DHSES/Governor's Office - Public Messages - December 23, 2022

<i>Message Title</i>	<i>Media Type</i>	<i>Time Shared</i>	<i>Views</i>	<i>Description</i>
Generator Safety	Tweet	11:00am	820	Shares safety tips for proper use of portable generator
Governor's Press Conference	Tweet	2:18pm	975	Shares key information from Commissioner Bray's comments during the press conference
Potential for Power Outages	Tweet	3:00pm	1,196	Explains high winds increase chances of power outages and provides list of safe alternative heat sources
DHSES Press Release	Tweet	3:59pm	1,048	Shares quote from Commissioner Bray asking State residents to check on their neighbors and says emergency response personnel are working over the holiday
Governor Deploying National Guard	Tweet	11:30pm	8,481	Shares statement by Governor on National Guard deployment to Erie County
Governor Hochul Provides Update on State's Response Efforts to Winter Storm Impacting Holiday Travel this Weekend	Press Release/ Media Briefing	3:34pm	N/A	Explains the actions the State is taking in response to the storm. Includes resource allocations, road closures, and winter travel & cold weather safety tips.
Video, Audio, Photos & Rush Transcript: Governor Hochul Holds Briefing as Winter Storm Moves Through New York	Press Release/ Media Briefing	4:39pm	N/A	Shares links to video, audio, and photos of Governor Hochul's storm briefing. Includes a transcript of the Governor's remarks.
Statement from Governor Kathy Hochul Deploying National Guard to Erie County Amid Winter Storm	Press Release	11:46pm	N/A	Shares statement by Governor Hochul on National Guard deployment to Erie County

Table 5. DHSES/Governor's Office - Public Messages - December 24, 2022

<i>Message Title</i>	<i>Media Type</i>	<i>Time Shared</i>	<i>Views</i>	<i>Description</i>
Dressing for Cold Weather	Tweet	8:00am	2,022	Safety tips for dressing in cold weather
NYSTA Thank You	Tweet	10:46am	1,216	Thank you to NYSTA crews working on Christmas Eve
Governor Storm Briefing	Tweet	11:31am	6,443	Explains 73k people still without power and historicizes storm
Agency Partners Thank You	Tweet	11:48am	12.3K	Thank you to Agency partners working through the holiday weekend. Includes quote tweet from NYS Police about staying off the roads.
Emergency Personnel Deployment	Tweet	10:20am	1,385	States agencies have deployed resources to WNY to help
OFPC Deployment	Tweet	11:16pm	8,459	Shows OFPC conducting stranded vehicle checks in Erie County
B-Roll, Video, Audio, Photos & Rush Transcript: Governor Hochul Holds Storm Briefing	Press Release/ Media Briefing	3:10pm	N/A	Shares links to video, audio, and photos of Governor Hochul's storm briefing. Includes a transcript of the Governor's remarks.
Governor Hochul Deploys National Guard and Additional State Agency Resources to Areas Impacted by Historic Winter Storm	Press Release	4:05pm	N/A	Explains the actions the State is taking in response to the storm's impact, including deployment of National Guard and sustained State of Emergency.

Table 6. DHSES/Governor's Office - Public Messages - December 25, 2022

<i>Message Title</i>	<i>Media Type</i>	<i>Time Shared</i>	<i>Views</i>	<i>Description</i>
Video & Audio: Governor Hochul Holds Virtual Storm Briefing	Press Release	12:59pm	N/A	Shares links to video and audio of Governor Hochul's storm briefing.
Governor Hochul Provides Update on State's Response to Historic Winter Storm Impacting Multiple Regions Across the State	Press Release/ Media Briefing	8:32pm	N/A	Explains State's current response to storm, including asset deployment, road closures, and power outage statistics. Also lists safety tips for winter travel, heavy exertion, power outages, and home heating.
OFPC Assets	Tweet	3:51am	1,627	Shares pictures of OFPC assets used in search & rescue efforts.
Genesee County Roads	Tweet	9:00am	3,748	Retweets a message from Genesee County stating all roads are now open in the county.
Public Safety Partners	Tweet	9:43am	1,285	Retweets a message from Erie County Executive Poloncarz and affirms DHSES is working with local officials on storm response.
Travel Bans (1)	Tweet	9:55am	11.1K	Notifying the public of counties with travel bans and asking residents to adhere to travel bans.

<i>Message Title</i>	<i>Media Type</i>	<i>Time Shared</i>	<i>Views</i>	<i>Description</i>
Travel Bans (2)	Tweet	10:23am	86.2K	Shares a list of counties with local travel bans in place.
Travel Bans (3)	Tweet	10:40am	5,800	Retweet of Erie County's driving ban notice. Asks residents to adhere to travel bans.
Supporting Local Partners	Tweet	10:44am	11.4K	States that DHSES, NYS Police, NYSDOT, utility crews, Erie County, and Buffalo public safety worked through the night on safety checks.
Commissioner Quote	Tweet	10:57am	4,329	Shares a quote on staying inside during a power outage from Commissioner Bray given during the Governor's storm briefing
OFPC Crews Working	Tweet	1:46pm	2,624	Shares pictures of OFPC vehicles and states they are continuing to support WNY on storm response.
Driving Bans	Tweet	5:42pm	5,168	Retweet from Erie County Executive Poloncarz on the countywide driving ban. States it will remain in effect until 7:00am on Monday.
MPRE Distribution	Tweet	6:46pm	8,683	Shares pictures of OFPC staff delivering bottled water and MREs to first responders and residents impacted by the storm.
National Guard Thank You	Tweet	10:51pm	88K	A thank you to the National Guard, stating they are continuing to support storm response.

Recovery Messaging

The following tables contain Public Messages shared by DHSES and the Governor's office during the Storm Recovery period.

Table 7. DHSES/Governor's Office - Public Messages - December 26, 2022

<i>Message Title</i>	<i>Media Type</i>	<i>Time Shared</i>	<i>Views</i>	<i>Description</i>
Video, Audio, Photos, & Rush Transcript: Governor Hochul Holds Virtual Storm Briefing	Press Release	2:51pm	N/A	Shares links to video, audio, and photos of Governor Hochul's storm briefing. Includes a transcript of the Governor's remarks.
Governor Hochul Submits Request for Federal Emergency Declaration as Historic Winter Storm Continues to Impact WNY	Press Release	4:05pm	N/A	Explains State's current response to storm, including request for Presidential emergency declaration, asset deployment, road closures, and power outage statistics. Also lists safety tips for winter travel, heavy exertion, power outages, and home heating.
OFPC (1)	Tweet	10:58am	5,430	States DHSES is helping Erie County alongside OFPC to support Buffalo firehouses.
OFPC (2)	Tweet	6:17pm	95.6K	States OFPC LMTV/UTV teams performed welfare checks in Cheektowaga and shoveled out an Erie County box truck

Table 8. DHSES/Governor's Office - Public Messages - December 27, 2022

<i>Message Title</i>	<i>Media Type</i>	<i>Time Shared</i>	<i>Views</i>	<i>Description</i>
<u>Governor Hochul Announces Reopening of Major WNY Highways in the Wake of Historic Snowstorm</u>	Press Release	12:20pm	N/A	Explains the State is reopening sections of major highways in WNY, a driving ban remains for City of Buffalo, and that a Federal Emergency Declaration was approved.
<u>Governor Hochul Announces Additional Actions to Provide Financial Relief to People in WNY and North Country Regions</u>	Press Release	12:58pm	N/A	Explains the State's encouraging banks to waive ATM fees and warns New Yorkers of price gouging throughout the storm.
<u>NWS Buffalo Thank You</u>	Tweet	9:18am	2,482	A thank you to forecasters from NWS Buffalo who worked during the storm.
<u>Agency Work</u>	Tweet	11:47am	1,588	States that DHSES is continuing to work with partner agencies at all levels of government to help WNY recover.
<u>Thank You NYSDOT</u>	Tweet	2:39pm	1,365	A thank you to NYSDOT staff members who worked during the storm.
<u>OFPC Team</u>	Tweet	5:19pm	3,462	States that the State fire team is still supporting City of Buffalo Fire Department through storm response.
<u>POTUS Approves State of Emergency</u>	Tweet	6:09pm	1,600	Shares CBS News article stating President Biden approved State of Emergency request.

Table 9. DHSES/Governor's Office - Public Messages - December 28, 2022

<i>Message Title</i>	<i>Media Type</i>	<i>Time Shared</i>	<i>Views</i>	<i>Description</i>
<u>Governor Hochul Directs State Agencies to Prepare Flood Response Assets in WNY Ahead of Potential Flooding Due to Snowmelt from Unseasonably Warm Temperatures</u>	Press Release	4:17pm	N/A	Explains the State's preparation efforts for possible flooding and provides flooding safety tips.

<i>Message Title</i>	<i>Media Type</i>	<i>Time Shared</i>	<i>Views</i>	<i>Description</i>
Governor Hochul Announces Additional Reopening of Major WNY Highways in the Wake of Historic Snowstorm	Press Release	9:58pm	N/A	States that all major state highways in WNY are now open and NYSDOT will continue assisting local municipalities with snow removal.
OFPC	Tweet	9:37am	1,202	States that OFPC is continuing to work with local public safety partners through storm recovery.
NYSDOT Snow Removal	Press Release/ Media Briefing	3:34pm	N/A	Explains the actions the State is taking in response to the storm. Includes resource allocations, road closures, and winter travel & cold weather safety tips.
Power Outage Safety (1)	Tweet	10:34am	17.4K	States that more than 113,000 power outages occurred across the State, with most of them occurring in WNY.
Power Outage Safety (2)	Tweet	10:37am	3,593	Quote tweets Power Outage Safety (1) Shares a power outage safety tip: discard medication that requires refrigeration if power was out for more than a day
Power Outage Safety (3)	Tweet	10:38am	2,617	Shares a power outage safety tip: Check for any appliances which may have been on when power went out
Power Outage Safety (4)	Tweet	10:38am	3,629	Shares a power outage safety tip: throw out food exposed to 40F temps for two hours or more
Flooding Safety	Tweet	7:00pm	1,803	States that warm temperatures will cause snowmelt and possible flooding. Points to DHSES site for flood safety tips.

F. Notable CEMP Components

State Assistance Modes

All operations hinge on the fact that emergencies and disasters both begin and end at the local level. According to the CEMP, there are two conditions that could trigger State operations. The first is when “incidents originat[e] at the local level, ...exhaust local resources and lead to a State and / or possibly a federal response.”⁶⁰ The other is “an incident occur[ing] in the State requiring an immediate State and / or possibly a federal response.”⁶¹ In the case of the Blizzard of '22, the first condition applied. Since the first condition means that State assistance can only begin once local resources have been exhausted, local resources and capabilities are considered the “first line of defense” when it comes to emergency response in this situation.⁶² The State may take the initiative and mobilize of their own accord or send resources to the affected area.

ESF #1

ESF #1 provides guidance for emergency response and recovery efforts related to Transportation. Like many other ESFs, it does not operate in a silo but rather in close coordination with several other ESFs. Each ESF has its own set of priorities, which are always set by the lead coordinating agency of that ESF. For ESF #1, these priorities are “1) Reopen impacted transportation infrastructure to allow safe passage of emergency vehicles and life sustaining service; and 2) Reestablish transportation infrastructure to enable repair crews to restore utility services.” As the lead coordinating agency, NYSDOT plays a key role not only in addressing issues with transportation infrastructure but also in working with stockpiles, supplies, and specialized equipment. According to ESF #1, NYSDOT and its listed partner agencies may provide items such as excavators, plows, snow blowers, generators, and light towers, all of which are essential for clearing large amounts of snow.

ESF #5

ESF #5, “Information and Planning,” governs information sharing and intelligence analysis activities. This includes collecting, analyzing, processing, and disseminating information about emergency related incidents. The member agencies for this ESF include any agency that has been activated by another ESF during the emergency response, as well as NWS.

ESF #15

ESF #15 coordinates “External Affairs” surrounding emergency response and is activated when an incident requires the coordination of public information for multiple agencies or when the SEOC activates. DHSES Office of External Affairs is the coordinating agency for this ESF and is tasked with providing accurate and well-timed information to the public and media as well as coordinating with federal, State, local, and non-governmental partners to ensure that outreach is effective.

⁶⁰ (NYS Disaster Preparedness Commission 2023)

⁶¹ (Ibid)

⁶² (Ibid)

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