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Winterization Preparedness

Empowering your community to thrive through seasonal transitions, unforeseen challenges, and evolving demands.

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Redefining Winter:

A Year-Round Approach to Community Resilience

The concept of "winter" varies dramatically across our diverse nation, from California's rainy season to Florida's mild temperatures. For municipal leaders like you, winter isn't just about weather—it's a complex set of circumstances that impact community infrastructure, local economy, and resident well-being.

Today's challenges demand a comprehensive, year-round approach to seasonal transitions. As a community leader, you're tasked with navigating:

- **Unpredictable weather patterns:** Environmental change is increasing the frequency and intensity of extreme weather events, even in typically mild climates. This unpredictability demands flexible response plans and robust infrastructure.
- **Tourism fluctuations:** Many communities experience significant shifts in visitor numbers during winter months. Whether you're dealing with an influx of sun-seekers or a downturn in off-season travel, these fluctuations can impact local businesses, public services, and community dynamics.
- **Seasonal staffing challenges:** The winter months often bring unique workforce management issues, from holiday-related absences to increased sick leave during flu season. Maintaining service levels with a fluctuating workforce requires careful planning and adaptable strategies.

While some patterns remain predictable, like holiday-related time off, others are becoming increasingly difficult to anticipate. Environmental shift is making "unexpected" the new normal, requiring strategies that can adapt to evolving conditions.

This guide is designed to equip you with practical solutions to maintain building department services, prepare for unexpected events, and ensure your community thrives throughout the year. By adopting a year-round mindset, you can better prepare your community for whatever challenges the changing seasons may bring.

Natural hazards: A glossary

More and more regions in the country are experiencing new weather phenomena for their areas. Here is a list of some of the most damaging natural hazards, as defined by the Federal Emergency Management Agency (FEMA).

Avalanche — A mass of snow in swift motion traveling down a mountainside.

Coastal flooding — When water inundates or covers normally dry coastal land because of high or rising tides or storm surges.

Cold wave — A rapid fall in temperature within 24 hours and extreme low temperatures for an extended period.

Hail — A form of precipitation that occurs during thunderstorms when raindrops, in extremely cold areas of the atmosphere, freeze into balls of ice before falling toward the earth's surface.

Heat wave — A period of abnormally and uncomfortably hot and unusually humid weather typically lasting two or more days with temperatures outside the historical averages for a given area.

Hurricane — A tropical cyclone or localized, low-pressure weather system that is made up of organized thunderstorms but no front (a boundary separating two air masses of different densities) and with maximum sustained winds of at least 74 mph.

Ice storm — A freezing rain situation (rain that freezes on surface contact) with significant ice accumulations of 0.25 inches or greater.

Landslide — The movement of a mass of rock, debris, or earth down a slope.

Lightning — A visible electrical discharge or spark of electricity in the atmosphere between clouds, the air and/or the ground, and often produced by a thunderstorm.

Riverine flooding — When streams and rivers exceed the capacity of their natural or constructed channels to accommodate water flow and water overflows the banks, spilling out into adjacent low-lying, dry land.

Strong wind — Consists of damaging winds, often originating from thunderstorms, that are classified as exceeding 58 mph.

Storm Surge — a dangerous rise in sea level caused by a storm, often associated with hurricanes or typhoons. It can cause severe flooding in coastal areas.

Tornado — A narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground and is visible only if it forms a condensation funnel made up of water droplets, dust, and debris.

Wildfire — An unplanned fire burning in natural or wildland areas such as forests, shrub lands, grasslands, or prairies.

Winter weather — Consists of winter storm events in which the main types of precipitation are snow, sleet, or freezing rain.

The National Landscape of Winter

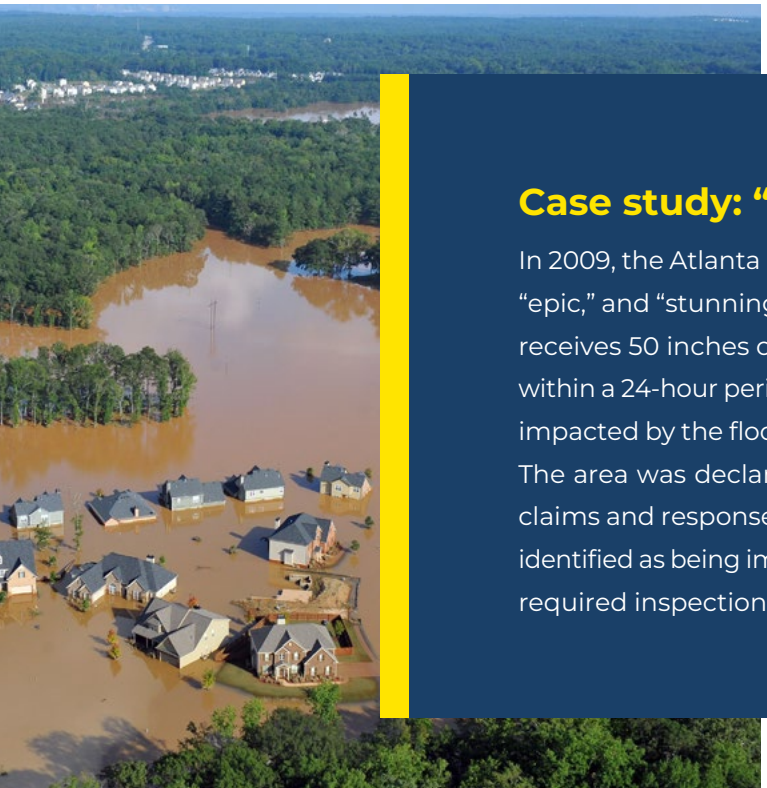
The impact of extreme weather

Winter extremes: Trending up from coast to coast

While most municipalities have their hands full managing winter-as-usual, extreme weather events and anomalies during the winter season are on the rise.

- In 2022, the continental United States saw a nearly 30% increase in climate extremes, both high and low, between the months of October and March (a 10% increase from the year prior).[1]
- Damages from the 2023 disasters totaled $92.9 billion. The costliest 2023 events were the Southern / Midwestern Drought and Heat Wave ($14.5 billion) and the Southern and Eastern Severe Weather in early March ($6.0 billion).[2]
- Every winter the eastern half of the country is experiencing more frequent heat extremes, while the West is experiencing unprecedented low temperatures.[3]
- Precipitation extremes throughout the year are contributing to dry-wet cycles of summer droughts followed by intense flooding.[4]

In most cases, the unseasonality, unpredictability, and severity of these extremes have put new levels of stress on infrastructure — and support staff — not originally intended to endure such conditions.

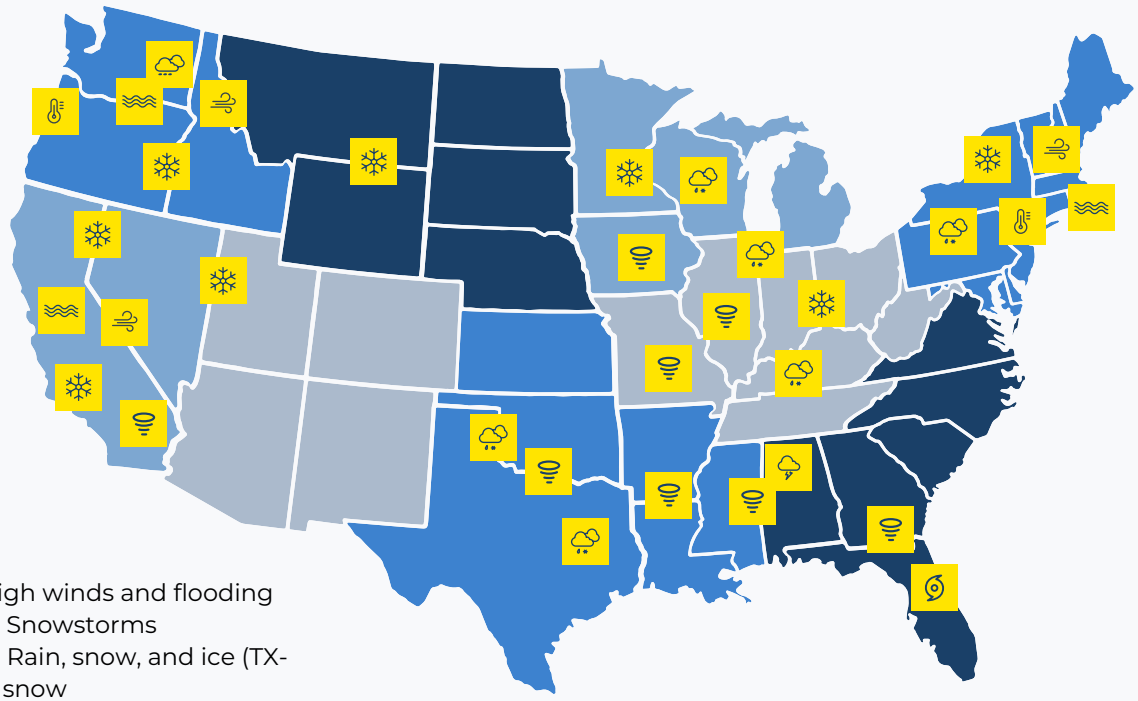


Case study: "Off-the-charts" flooding in Georgia

In 2009, the Atlanta area was hit by a flood that was declared "off the charts," "epic," and "stunning" by the U.S. Geological Survey. In an area that normally receives 50 inches of rain a year, some locations recorded 20 inches of rain within a 24-hour period. The City of Powder Springs had many neighborhoods impacted by the floodwaters, which did not begin to recede for several days. The area was declared a natural disaster and FEMA stepped in to oversee claims and response. Approximately 100 structures in Powder Springs were identified as being impacted by the flood initially, and more than 120 structures required inspection and assessment.

National Perspective: The Far-Reaching Impact of Seasonal Shifts

Winter preparedness is a nationwide concern, with recent years demonstrating that no region is immune to extreme weather events or seasonal disruptions.



Northeast
October: High winds and flooding
November: Snowstorms
December: Rain, snow, and ice (TX-ME); heavy snow
January: Snowless (NYC); record warmth (CT, MA, ME, NH, NJ, RI, VT)
February: Lowest temp ever in U.S. history (NH)
March: Heavy snowfalls

Northern Rockies and Plains
October: Snow (CO, MT)

Northwest
October: Extreme heat (Pacific NW)
November: Flooding, heavy rain, heavy snow, wind

Ohio Valley
December: Rain, snow, ice (TX-ME)
January: Tornado outbreak (IL)

South
November: 2 EF-4 Tornadoes (AR, LA, OK, TX)
December: Tornado outbreak (LA, MS, OK, TX); rain, snow, and ice (TX)
January: Freezing rain, ice (OK, Southern Plains, TX)
February: 11 Tornadoes (OK)
March: Tornadoes (South and Midwest)

Southwest
October: Snow (NV, UT)
March: Snow (UT)

Upper Midwest
October: Record-breaking snowfall, power outages
December: Rain, snow, ice (TX-ME)
January: Tornadoes (IA)

West
October: Snow (Eastern CA)
November: Flooding, heavy rain, heavy snow, wind
December: Drought (CA)
January: Flooding, mudslides, landslides (CA)
February: Heavy snow (Southern CA)
March: Snow (CA); tornado (Southern CA)

This snapshot illustrates the diverse challenges communities face during winter months. From unexpected warmth in the Northeast to unprecedented snowfall in the Southwest, these anomalies underscore the need for adaptable winterization strategies.

The financial implications are significant:

$2.6T

Adding the 2023 events to the record that began in 1980, the U.S. has sustained 376 weather and climate disasters with the overall damage costs reaching or exceeding $1 billion. The cumulative cost for these 376 events exceeds $2.660 trillion.[6]

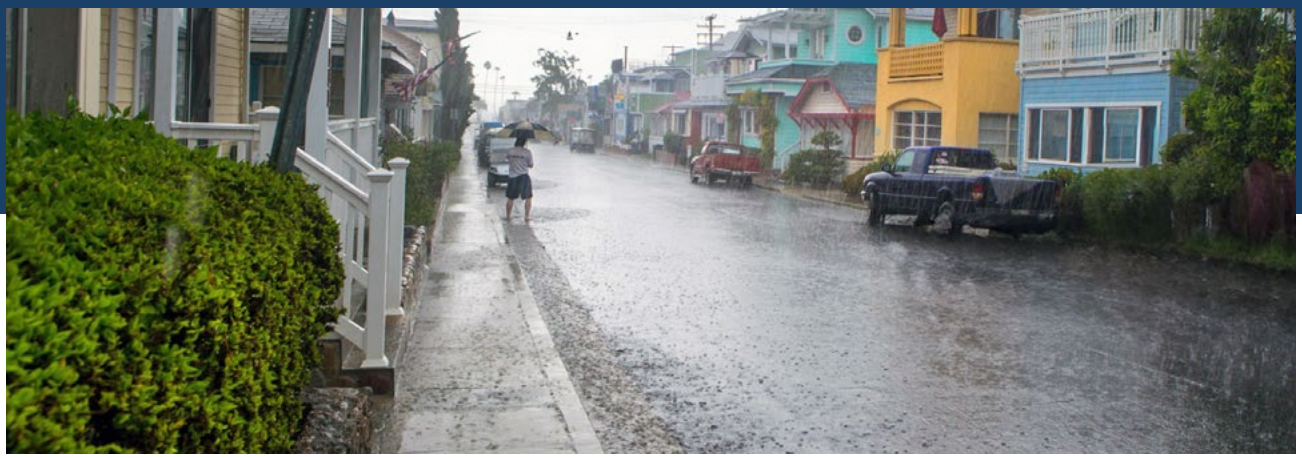
According to the National Weather Service, 2024 is on track to have the most billion-dollar weather events in history.[6] Although these are by no means the norm, they do represent the increasing types and scope of damages that occur during winter months.

$176B

In 2022, 18 extreme weather events caused 474 deaths and cost $176.9B[6]

But the costs are far greater than what can be quantified in dollar amounts. Human and animal lives, local history, physical spaces, natural wonders, government resources, and time are all part of the damage done.

These figures highlight the critical importance of proactive winterization efforts. By investing in preparedness, communities can potentially mitigate costs and bounce back more quickly from extreme events.



A Closer Look: West Weld County

Hail damage: By the numbers[7]

First incorporated: November 20, 1920
Population: Approximately 6,494
Elevation: 4,888 feet
Number of hailstorm reports in 2023 (January – August): 11
Largest hailstone recorded: 1.5 inches in diameter
ZIP code with highest concentration of damage: 80634
Most people injured in a single storm: 100
Associated weather: Damaging winds, tornadoes
Largest recorded hailstones in CO history: 5 inches in diameter (Kit Carson County), 2019
Most expensive hailstorm in CO history: $2.3B in property damage (Jefferson County), 2018

Zooming out: Environmental hazards[8]

119 properties in the West region of Weld County are likely to be severely affected by flooding over the next 30 years.

227 properties in the West region of Weld County have some risk of being in a wildfire within the next 30 years.

The area around the West region of Weld County is expected to see a 171.4% increase in the number of days above 87°F over the next 30 years.

Western wildfires destroyed 246% more homes and buildings than over the past decade.[9]

Colorado experiences huge fires every month of the year, with increasing fire danger in winter.

This winter won't be like last winter...

With the rapid and dramatic changes in winter weather across the country, approaching the season "the way we've always done it" is a luxury few municipalities can any longer afford. This winter will be different from the last. There's a good chance it will be more extreme in some way you hadn't counted on. And there's a really good chance that the winter after will be even more so.

This awareness — the understanding of changing weather patterns and the threats they pose — is an important first step in establishing a winter weather strategy. This strategy will be what keeps you, your staff, your community, and your municipality's infrastructure safe and secure, and will help you access the resources and support you need to handle the numerous challenges that an unprecedented winter weather event or emergency will present.

So, how do you make sure you have the right people-power on hand during this time of year?

The Human Factor:

Navigating Seasonal Workforce Challenges

While infrastructure and weather are leading components, the human element of winter preparedness is equally important. The season presents unique workforce management challenges that can significantly impact municipal operations.

The holiday period, coupled with cold and flu season, often results in higher rates of both planned and unplanned absences:

Out of office: By the numbers

31% of employers notice an uptick in sick days around the winter holidays.[10]

20% of employers report that their employees call in sick the most during December, followed by July, January, and February.[12]

Around 16 million Americans called in sick on the Monday after the 2023 Super Bowl. [11]

2023's Most popular days to call in sick[12]

- **Day after Christmas**
- **Day after Easter**
- **Day after New Year's Day**
- **Day after Mother's Day**
- **Mondays**

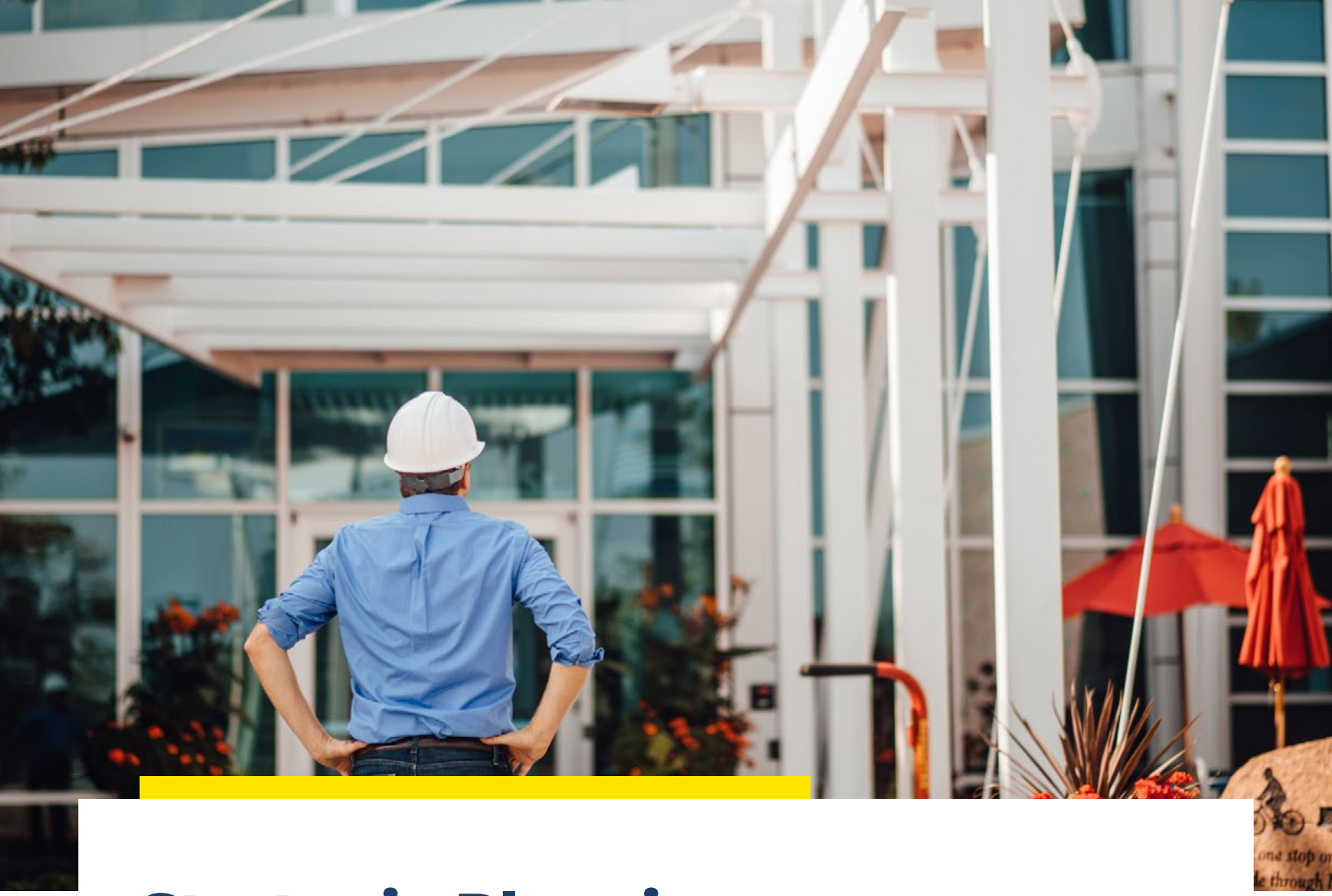
These figures illustrate the staffing hurdles municipalities face during winter. Such fluctuations can create a ripple effect throughout your organization:

- **Increased workload:** Remaining staff may face longer hours and increased stress, potentially leading to burnout if not managed effectively.
- **Role flexibility:** Cross-coverage becomes necessary, offering cross-training opportunities but also increasing the risk of errors as employees navigate unfamiliar tasks.
- **New challenges:** Reduced staff and role shifts may lead to unexpected issues that typical processes aren't designed to handle, requiring agile management.

To address these challenges:

1. Develop comprehensive staffing strategies that account for seasonal fluctuations.
2. Consider flexible scheduling options and robust cross-training programs.
3. Explore partnerships with a service provider like SAFEbuilt to fill critical gaps.
4. Implement employee support programs, such as wellness initiatives or stress management resources.

By proactively addressing these human elements, you can maintain high-quality services while supporting your team through the complexities of the season.



Strategic Planning:

Fortifying Your Community for Winter Challenges

A proactive approach is key to navigating winter's complexities. Here's a comprehensive checklist to enhance your community's winter readiness:

CONDUCT THOROUGH INFRASTRUCTURE ASSESSMENTS

- [ ] **Evaluate structures for winter-specific vulnerabilities**
- [ ] **Inspect roof integrity, focusing on potential water accumulation areas**
- [ ] **Assess drainage systems' capacity to handle heavy precipitation or flooding**

Proactive infrastructure management prevents minor issues from becoming major problems during adverse weather.

IMPLEMENT ROBUST STAFFING STRATEGIES

- [ ] **Develop comprehensive coverage plans for critical roles during high-absence periods**
- [ ] **Invest in cross-training to enhance workforce flexibility**
- [ ] **Establish partnerships with SAFEbuilt for peak demand periods**

A flexible, well-supported workforce maintains service levels even during challenging times.

ENHANCE EMERGENCY PREPAREDNESS

- [ ] **Update response plans for scenarios ranging from severe weather to extended power outages**
- [ ] **Ensure emergency shelters are well-equipped and accessible**
- [ ] **Develop and test public communication systems for swift information dissemination**

Well-prepared communities respond more effectively to emergencies, minimizing impact and facilitating faster recovery.

PRIORITIZE VULNERABLE POPULATION SUPPORT

- [ ] **Identify at-risk community members and create targeted support plans**
- [ ] **Establish check-in protocols for assisting vulnerable populations during extreme events**

Focusing on those most at risk ensures protection for your community's most vulnerable members.

OPTIMIZE PUBLIC INFRASTRUCTURE

- [ ] **Conduct strategic vegetation management to mitigate storm-related damage**
- [ ] **Inspect and maintain stormwater systems to prevent flooding**
- [ ] **Evaluate and upgrade public lighting for safety during shorter winter days**

These measures significantly reduce the risk of weather-related accidents and infrastructure failures.

LEVERAGE TECHNOLOGY SOLUTIONS

- [ ] **Explore automation tools to streamline operations and reduce manual workload**
- [ ] **Upgrade systems to support remote work capabilities, ensuring operational continuity**

A flexible, well-supported workforce maintains service levels even during challenging times.

DEVELOP ECONOMIC RESILIENCE PLANS

- [ ] **Create strategies to support local businesses during potential slow periods**
- [ ] **Prepare for managing tourist influxes in areas with increased winter visitation**

A strong local economy better withstands seasonal fluctuations.

REINFORCE PUBLIC HEALTH AND SAFETY MEASURES

- [ ] **Stock essential supplies for potential health emergencies or natural disasters**
- [ ] **Coordinate with local health departments on winter health concerns**

Prioritizing public health reduces strain on community resources during challenging months.

By addressing these areas proactively, your community will be better positioned to handle both predictable challenges and unforeseen events. Remember, effective winterization isn't just about individual actions — it's about creating a resilient, adaptable community system. This comprehensive approach ensures your community can thrive throughout the winter season and beyond, no matter what challenges arise.

The winter and the damage done

Even regions with milder winters face significant challenges. Here are some of the costliest weather events of 2022-2023 that impacted warmer areas:

California Flooding

December 2022 – March 2023

Severe flooding, record snowfall, and heavy rainfall reduced drought deficits while impacting homes, businesses, levees, and agriculture.

Number of deaths: 22

Damage in dollars: $4.6B

Southern and Eastern Severe Weather

March 2023

High winds and tornadoes caused widespread damage across several states.

Number of deaths: 13

Damage in dollars: $6.1B

Western/Central Drought and Heat Wave

December 2022

Severe drought impacted crop production and river commerce. Extreme heat caused over 100 fatalities across multiple states.

Number of deaths: 136

Damage in dollars: $22.6B

These statistics highlight the need for comprehensive preparedness in all climates, focusing on region-specific challenges like increased rainfall, flooding, and holiday staffing issues.

Adaptive Approaches:

Flexibility in Seasonal Operations

While planning is crucial, true resilience lies in adapting to evolving conditions. Here's how to implement and adjust your strategies effectively:

CONTINUOUS MONITORING AND ASSESSMENT

- [ ] **Establish regular weather pattern monitoring**
- [ ] **Conduct frequent checks on critical infrastructure**
- [ ] **Keep a pulse on community needs through ongoing engagement**

By staying informed about evolving conditions, you can proactively adjust your response strategies.

AGILE RESOURCE ALLOCATION

- [ ] **Develop a flexible budget with contingency funds**
- [ ] **Create systems for rapid redeployment of personnel and equipment**
- [ ] **Establish mutual aid agreements with neighboring communities**

This flexibility allows you to direct resources where they're most needed as situations change.

ITERATIVE POLICY ADJUSTMENTS

- [ ] **Regularly review and update policies based on real-time experiences**
- [ ] **Encourage feedback from staff and community members**
- [ ] **Be prepared to implement temporary measures for emergent issues**

Policies that can evolve with changing circumstances will better serve your community's needs.

ENHANCED COMMUNICATION PROTOCOLS

- [ ] **Develop multi-channel strategies to reach all community members**
- [ ] **Provide regular updates on changing conditions and response efforts**
- [ ] **Establish clear lines of communication between departments and stakeholders**

Effective communication ensures that everyone is informed and can respond appropriately to changing situations.

SCENARIO-BASED RESPONSE DRILLS

- [ ] **Conduct regular drills based on various winter scenarios**
- [ ] **Involve multiple departments to test cross-functional coordination**
- [ ] **Use outcomes to refine and improve response plans**

These exercises can help identify gaps in your strategies and improve overall preparedness.

The goal is to create a system that responds effectively to any challenge, creating a culture of flexibility and continuous improvement.

Post-Season Analysis:

Lessons Learned and Future Improvements

As the winter season comes to a close, it's tempting to simply move on to the next set of challenges. However, taking the time for a thorough post-season analysis can yield valuable insights that will enhance your community's resilience for years to come. Here's how to conduct an effective review:

COMPREHENSIVE DATA COLLECTION

- [ ] **Gather quantitative data on resource utilization, response times, and incident frequencies**
- [ ] **Collect qualitative feedback from staff, community members, and partner organizations**
- [ ] **Review logs and reports from throughout the season**

This multi-faceted approach ensures a complete picture of your winter operations.

PERFORMANCE METRIC EVALUATION

- [ ] **Assess performance against pre-established goals and benchmarks**
- [ ] **Identify areas where targets were met, exceeded, or fell short**
- [ ] **Analyze trends over multiple seasons to spot long-term patterns**

Understanding your performance metrics is key to setting realistic goals and tracking progress over time.

ROOT-CAUSE ANALYSIS

- [ ] **For any significant challenges or failures, conduct a thorough root-cause analysis**
- [ ] **Look beyond immediate causes to identify systemic issues**
- [ ] **Consider both internal factors and external influences**

This deep dive can reveal underlying issues that, when addressed, can prevent future problems.

SUCCESS STORY AMPLIFICATION

- [ ] **Identify and document successful strategies and interventions**
- [ ] **Analyze what made these approaches effective**
- [ ] **Consider how successful approaches can be expanded or applied to other areas**

Learning from successes is just as important as learning from challenges.

STAKEHOLDER DEBRIEFING SESSIONS

- [ ] **Conduct debriefing sessions with staff, community leaders, and partner organizations**
- [ ] **Encourage open, honest feedback about what worked and what didn't**
- [ ] **Brainstorm ideas for future improvements**

These sessions can provide valuable perspectives and foster a culture of continuous improvement.

ACTION PLAN DEVELOPMENT

- [ ] **Based on your analysis, develop a concrete action plan for the coming year**
- [ ] **Prioritize improvements based on impact and feasibility**
- [ ] **Assign responsibilities and set timelines for implementation**

A clear action plan ensures that insights translate into tangible improvements.

KNOWLEDGE SHARING

- [ ] **Document lessons learned and best practices**
- [ ] **Share insights with other departments and neighboring communities**
- [ ] **Consider presenting findings at regional or national conferences**

Sharing knowledge not only helps others but can also provide fresh perspectives on your own practices.

By conducting a thorough post-season analysis, you transform each winter into a learning opportunity. This process of continuous improvement ensures that your community becomes more resilient and better prepared with each passing year.

SAFEbuilt: Your Year-Round Partner in Community Resilience

Whether we're providing hourly staff or a full-service embedded department, SAFEbuilt delivers custom building and safety solutions designed to help you maintain the safety and satisfaction of your community before, during, and after the winter season.

Full-service, full-coverage

Our team includes subject matter experts, building officials, plan reviewers, inspectors, business managers, problem solvers, and customer relationship managers. We understand building department services and develop an operational and staffing solution that best fits the needs of your community. In addition, SAFEbuilt has technology solutions for managing inspections as well as plan reviews that streamline the processes and provide better visibility and management of the work.

Custom-built solutions

We bring a custom and personalized approach to your building department with the ability to scale up and down based on your development workload and needs. Whether you need to fill a building-official role to fulfill state regulations, require a large increase in inspectors, or want to simplify your permit process, we have the experts on hand to make your life easier, boost your local economy, and keep your community safe.

Getting it right the first time

We operate building departments as an extension of your community. For this reason, we place the highest value in getting the job done right the first time. By doing it right the first time, we increase customer satisfaction on the front end, decrease inefficiency costs, and reduce customer complaints.

It's never too early to start the winterization conversation: **Contact us today about your winter plans, questions, and concerns.**

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Sources

[1]NOAA National Centers for Environmental Information (NCEI), 2023. Climate Extremes Index (All Steps Combined) Cold Season (October 2021 - March 2022).

[2]2023: A Historic Year of U.S. Billion-Dollar Weather and Climate Disasters.

[3]NOAA National Centers for Environmental Information (NCEI), 2023. Regional Overview.

[4]NOAA National Centers for Environmental Information (NCEI), 2023. Future Drought.

[5]National Climate Overview: National Climate Report 2023 January

[6]2023: A Historic Year of U.S. Billion-Dollar Weather and Climate Disasters.

[7]Uncover Colorado. Severance, Colorado.

[8]Risk Factor. Wind Risk Overview. Does 80025 have Wind Risk?

[9]Colorado Arts and Sciences Magazine. Western wildfires destroyed 246% more homes and buildings over the past decade. February 2023.

[10]The Craziest Excuses Workers Use When Calling In Sick. October 2012.

[11]Super Bowl Fever: Should the Day After Be a National Holiday? February 2023.

[12]Reader's Digest. This Is the Day You're Most Likely to Call in Sick. February 2023.

[13]NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2023).

[14]Federal Emergency Management Agency (FEMA) National Risk Index. Social Vulnerability.

[15]Federal Emergency Management Agency (FEMA) National Risk Index. Community Resilience.

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