

## PUBLIC WORKS: PREPARING FOR DISASTERS

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If you have spent any time at all in public works, you know that responding to natural and manmade disasters is when you are expected to shine. When a crisis hits, public works crews are called upon to provide the proper equipment and manpower with expediency, adequate know-how, and the right attitude to get the job done.

Let's look at some common disasters in Pennsylvania and how public works can be prepared.



### Flooding

High-water events can occur without warning. In fact, flash floods caused by small but strong storm cells seem to be occurring with more frequency these days. How can you be prepared and keep your crew and the motoring public safe?

Subscribing to a good weather resource is vital for real-time and accurate forecasts of what to expect when storms are in the forecast. The National Weather Service provides free briefings by regions with subsequent updates as conditions develop. Find out more at [www.weather.gov](http://www.weather.gov).

Crews must know where stormwater basins are located and when they need cleared. Make sure you have the right equipment to dislodge clogs and debris. Updated maps of basin locations and outlet structures can assist in directing crews to underwater facilities that need cleared.

In the event of a community-wide flood, debris management becomes paramount, and you will need the right tools, such as digging bars, rakes, and shovels, to clear debris. Your municipality may also want to have a contracted service on standby to help clear clogged pipes that need jetted or vacuumed.

Also, be sure your employees have the proper personal protective equipment (PPE) — rubber gloves, rain suits, and rubber boots — to get the job done. In addition, take stock of your inventory of barricades and signage, which will be needed if motorists should avoid an area.



### Wind and Tornadoes

Although the strongest and most devastating tornadoes have historically occurred in the central and western counties of Pennsylvania, StormsellWeather.com reports that every county in the state is at risk. Beyond tornadoes, high-wind events are a far more common occurrence.

You may not always receive advanced warning of high winds. Therefore, ensure you have an inventory of chainsaws,

loaders, backhoes, trucks, and chippers at the ready to help with debris removal from roads. Occasionally, you may need to handle large debris collection and management. Do you have a staging location and disposal plan in place?

Since your municipality might be eligible to receive disaster relief funding for an event, be sure to document your response activity during a disaster, including employee hours, equipment used, materials, and contractor invoices, for possible reimbursement.

### Snow and Ice

Any snow and ice event should be considered an emergency response activity since it could be crippling to your residents and businesses. Think through your plan of attack: Do you have the right





equipment and material on hand to clear your roads? Do you have an adequate mix of loaders, backhoes, tractors, and smaller trucks with plows to handle the amount of forecasted snow? How will you handle street parking and cul-de-sac clearing? Have you ever considered using contractors to lend a hand or be on standby in case your crews need support?

A carefully crafted snow and ice control plan is the best way to make sure that your municipality is prepared for winter maintenance operations. Such plans will help you implement tiered staffing, outline equipment that can be used, and define material storage and use. Keep your residents in the loop about your plans. Ephrata Borough in Lancaster County puts its snow management plan on its website so that residents are aware of how prepared the borough is for winter events.

Be sure to take advantage of all available resources to make sure you are prepared. LTAP offers a free winter maintenance course, and the Federal Emergency Management Agency has a great tabletop exercise for your municipality to work through. Check it out at <https://tinyurl.com/femawinterplaybook>.

### **Landslides and Sinkholes**

Pennsylvania's topography makes the state more susceptible to landslides and sinkholes. Such occurrences are more likely to happen at existing old landslides, on or at the base of slopes and minor drainage hollows, at the base or top of an old-fill or steep-cut slope, or along

developed hillsides where leach-field septic systems are used. You may want to ask your engineer to identify such potential sources of landslides and sinkholes in your municipality and develop a long-term solution to them.

If a landslide or sinkhole were to occur, your public works crew should know how to handle the situation to make the area safe. First, assess the situation and determine if you can make the road safe and passable, perhaps with a single lane. If not, you may need to develop





both short- and long-term detours using barricades, signage, and possibly temporary traffic signals. Your municipal engineer can help to make the call as to whether signals will be needed.

The LTAP course, *Drainage: Keys to Roads That Last*, addresses common drainage issues that could lead to sinkholes and slides. As a side note, Dr. Christoph Mertz at Carnegie Mellon University has been conducting research in the field of advanced slide detection through time-lapsed photography analysis and 3-D recreation of slides. Learn more about that project at [www.cmu.edu/metro21/news-and-events/wtae-landslides-metro21.html](http://www.cmu.edu/metro21/news-and-events/wtae-landslides-metro21.html).

### Manmade Disasters

Unlike natural disasters, where road crews may be able to plan for some predictive outcomes, manmade disasters are far more unpredictable. They require you to think creatively about the world around you, be in tune with what is happening in various industries, possibly understand social and political tempers, and evaluate risks differently. Here are a couple common manmade disasters and how you can best prepare your crew:

**Chemical Spill Response** – In all likelihood, your local fire company or hazmat team is trained and equipped to handle large commercial spills. Public works personnel should consider having a response plan that defines its role if a spill occurs. This plan may include having

kits for small, medium, and larger spills at the ready. A basic small to medium spill response kit should include the following items:

- PPE (gloves, overalls, overshoes, safety goggles)
- Absorbent materials in various sizes (paper towels, spill pads, spill socks)
- Disposal bags with tape or twist ties
- Dustpan and polypropylene broom
- Container for waste

For larger spills, stockpiled sand could act as an absorbent, but considerations must be made for sweeping up and disposing of the used material.

Without knowing what effect a chemical hazard could have on life, property, or the environment, your crew should be on high alert and approach any spill with caution. Is there an important drinking water source or reservoir nearby that needs protected? Hopefully, you have a good map of your storm system and its basins, pipes, swales, and outlets to larger streams and bodies of water that you can check. The makeup of the chemical and nearby environmental conditions will determine the direction and speed that the chemical may spread.

**Terrorism and Political Unrest** – Whether it's a weekly garbage truck through a neighborhood or a snowplow in the winter, public works operations are visible. Your employees become familiar with the roads, homes, businesses, and people on their routes, and they may be



the first to notice changes or suspicious activity. Public works, therefore, can be a valuable asset to counter terrorism.

Terrorism acts are typically plotted over time as individuals gather intelligence on their targets. The national campaign, See Something Say Something, encourages the reporting of suspicious activity. Public works employees, as well as members of the public, should be directed to report suspicious activity to the Pennsylvania Criminal Intelligence Center (PaCIC), which works to prevent, protect against, mitigate the effects of, respond to, and recover from emergencies and disasters. The center's phone number is 888-292-1919.

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Public works crews can play a vital role in disaster prevention, preparedness, mitigation, response, and recovery. How resilient a community will be following a disaster of any kind may depend on how well prepared its public works department was before the disaster struck. No matter what disaster comes your way, make sure your crew is ready, well trained, and equipped for the best possible outcome.

## **National Incident Management (NIMS) and Public Works**

FEMA's National Incident Management System, known as NIMS, provides guidance to standardize how agencies across all levels of government prepare and operate during an emergency. Command center setup, terminology, staff training, resource management, internal and external coordination, and information management are outlined in NIMS training courses. Although public works operations are typically positioned in the field, it's important to understand the structure of the operations center and the role that public works personnel could play in a disaster.

Two introductory NIMS courses are relevant to public works: NIMS 100, which is an introduction to the role of incident command, and NIMS 700, which focuses on the NIMS framework as a whole. Both courses are offered free and online at [training.fema.gov](https://training.fema.gov).