

ICS for Public Works

Why Is ICS Important for Public Works?

Before diving into why the Incident Command System (ICS) is important to public works, it is essential to understand the context through which ICS exists. ICS is a standardized management system, typically associated with on-scene emergency management operations, specifically designed to provide an integrated organizational structure that can manage the complexity and demands of single or multiple incidents. This includes taking into consideration potential jurisdictional boundaries, public and private organizations, and many other factors including facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents. With over 40 years of usage, ICS is considered a best practice and is used worldwide. It is the backbone of the National Incident Management System (NIMS). In California, ICS is an element of the State's Standard Emergency Management System (SEMS), which is a state law mandating that SEMS be used in response to incidents in the field.

Public works departments across the country serve their communities in a variety of ways. Depending on the size and political jurisdiction, public works services could potentially include water, storm water, electrical, solid waste, sanitary sewer, streets, transit, buildings, parks and grounds, fleet maintenance, and other activities that are essential to local government operations. Because public works agencies do not operate in a vacuum, it is essential that they actively reach out to other partner agencies (public and private) to develop strong, positive working relationships at all levels. Part of developing effective partnerships and communication is embracing ICS and implementing it wherever feasible in their own public works operations.

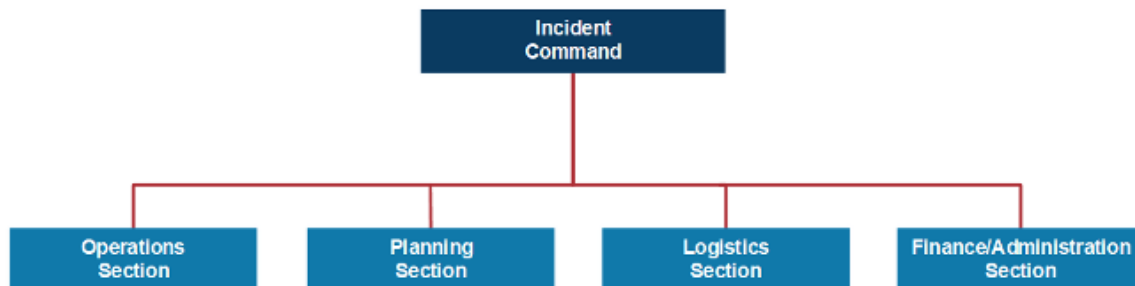
ICS is a tool that is not only used during emergency situations, but can also be effectively used for day-to-day public works operations (including working with other partners). With ICS, it is important to implement it as often as possible into day-to-day operations. The familiarity and practice of ICS will assist when an emergency occurs and staff responds to the situation using the same (or, at least, familiar) organizational approach they use on a regular basis.

Public works departments have a wide range of responsibilities and a fixed number of staff and other resources to meet those needs. The ICS system can help arrange a public works department to more effectively identify the critical needs and coordinate the resources to meet those needs. This includes coordination and communication with partners outside of public works.

As with day-to-day operations, emergency situations also require good communication. ICS provides a framework for how communication should occur and who should be communicating with whom. Although communication methods can vary from public works department to department, this should not be an obstacle in using ICS. ICS provides more common operabilities than differences among all agencies.

How Might the ICS Command Structure Look in a Public Works Environment?

As a reminder, the standard issue ICS structure looks like this:



The components of the ICS structure are standard no matter the size or type of the incident. These components are activated as needed to manage the incident, keeping in mind that some sections may be covered under typical operations. If a section does not need to be activated for an incident, the incident commander does not need to establish it. However, the incident commander is responsible for ensuring that all needed functions are met, either by managing it themselves or delegating it to the sections.

To relate this ICS structure to a public works incident, let's use the example of a water main break. The incident commander in this situation may be a utility supervisor.

- Under the operations section would be the repair team.
 - The Operations Section could also include a traffic control unit, which may include police or fire resources.
- Under the planning section, they would be responsible for documentation and ensuring all personnel on scene are checked in and accounted for. They would also be responsible for running any meetings needed to prepare an action plan. Technical specialists could research data in the area.
- Logistics could be handled by normal methods for equipment and staffing.
- Finance/administration would most likely be done through typical day-to-day procedures.

One thing to note is the importance of span of control when considering delegation of responsibilities. An effective span of control, or the number of direct reports, is ideally in the 3-8 range with more complicated/complex incidents being on the lower end of that ratio. As with day-to-day operations, life safety (for responders and the public) is the number one objective in response to an incident. The smaller ratio ensures safety of the responder and the operations. It is vital that the organizational structure is tailored to effectively manage the resources assigned to an incident or event.

As an example for a typical day-to-day operation of a public works department, assuming the public works department oversees streets, utilities (storm water, sanitary sewer), parks, buildings, and engineering, the bulk of the staff would be listed somewhere under the operations section. Staff within the operations section is the "Doers." Staff would be completing tasks both out in the field (street repairs, jetting sewers, exercising valves, maintaining buildings, repairing playgrounds, etc.) and in the office (designing projects, managing right-of-way, etc.). For those individuals involved in long-term

planning and policy development, they would be positioned under the planning section. In the ICS structure, planning section members are the “Gatherers.” They gather information and have technical experts within the section. Logistics may be covered by a variety of people who are responsible for managing supplies, maintaining equipment/inventory, and coordinating other resources. Logistics are the “Getters.” Finance/Administration could be a combination of staff within the public works department or outside of the public works department depending on the overall government structure. This section is the “Money.”

While water main breaks and typical operations may seem like old hat to public works professionals, ICS still plays a role in these operations and should be used. This is important because familiarity with ICS is essential during larger emergencies or disaster situations. With the example of a widespread storm, the ICS structure may look a bit more complex.

- Operations section may have a debris removal team, utilities damage assessment team, damage survey team, City building assessment team.
- Planning section would be collecting information on the initial damages, future weather reports, planning for debris disposal, considerations for infrastructure repair, planning for road detours or clearance, GIS mapping of the incident locations and road closures.
- Logistics section would be responsible for rental equipment, fuel, personnel and even lodging for outside personnel if mutual aid is requested.
- Finance section would be collecting the costs of the incident response, approving spending allocations, drafting MOUs for land use agreements.

Public works professionals are committed to public service and overcoming major challenges to accomplish the job. The methods and systems they have been using to respond to the various challenges and disasters over time may have worked and gotten the job done. However, just because the current method of incident management worked does not mean that a department should not try to improve incident management and challenge themselves to use ICS both for normal day and emergency situations. When emergency situations escalate to disasters and public works agencies are shoulder to shoulder with fire, law enforcement, and emergency medical systems, it is vital that the public works staff be competent with the ICS because fire, law enforcement, and EMS use ICS on a daily basis.

Incident Commander

The incident commander (IC) is the individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.

Who assumes the role as the incident commander for a given incident really depends on the scope of the event/incident. Within public works for day-to-day operations, the incident commander may have a title such as public works director or operations manager. Their responsibilities would generally include overseeing all operations of the public works department and delegating supervision roles out to other staff, depending on the work, skills, and equipment needed for the various tasks. For an emergency situation, special event, or other more focused activity, the incident commander would really depend on the scope of the event. As noted earlier, for a water main break the incident commander may be a utilities supervisor. For snow plow operations, it may be a streets superintendent. For a special event in a park, it could be the parks supervisor.

Command Staff

The command staff consists of the public information officer (PIO), safety officer, and liaison officer. Command staff report directly to the incident commander. They may have one or more deputies, as needed, depending on the size and scope of the need.

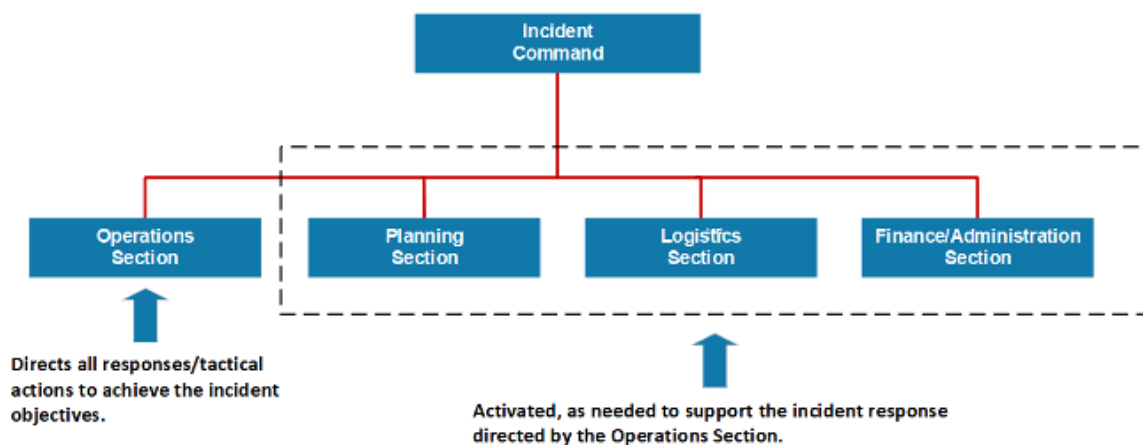
In a typical public works operating environment, the PIO position could be filled by someone outside the public works department, such as by someone on the local government's communications staff. Depending on the size of the local agency, the PIO may also be an "other duties as assigned" role for someone within public works. Regardless of who fills the role, it is important that every public works department have at least one person ready to serve in this role during both typical operations and emergency situations.

General Staff

The general staff is a group of incident management personnel organized per function and reporting to the incident commander. The general staff consists of up to four sections: operations, planning, logistics and finance/administration. In an expanding incident, the incident commander first establishes the operations section. The remaining sections are established as needed to support the operation in response to the event.

Under typical public works operations it is most likely that for a local government these general staff functions will be spread out beyond just the staff within a public works department. For smaller incidents and special events, the command structure will probably not change much from day-to-day (typical) operations. When an incident becomes larger and more complex, then the command structure may change from typical operations. Activities that were once done by others outside of a public works department may shift to within the department. On that same note, some functions may shift outside the public works department staff.

As an example, in a flooding incident with forecasted additional storms that create more problems and hazards, such as swift water rescues, traffic incidents, and road closures, the incident would transition from public works command to fire or law enforcement or unified command. Conversely, when the life safety issues are handled and recovery begins, command may again transfer to public works.



Operations Section

The operations section is responsible for all tactical operations at the incident. The section includes branches, divisions and/or groups, task forces, strike teams, single resources, and staging areas. The operations section is the bread and butter of public works—the Doers.

Under typical operations the operations section would include individuals or groups completing tasks such as traffic sign repair, exercising water valves, jetting sewer mains, mowing park turf, playground maintenance, equipment repairs, tree inspections, construction surveying, flood control/storm water infrastructure inspections, facility inspections, traffic signals, aviation, etc.

During emergency response, the operations section of public works could have groups on debris removal, checking sanitary sewer lift stations and taking needed actions if the power is out. This might include a damage assessment team for public facilities, responding to localized flooding issues, supporting other first responders in getting access to locations where people are injured or otherwise needing help, and similar activities.

Planning Section

The planning section is responsible for the collection, evaluation, and dissemination of information related to the incident, and for the preparation and documentation of incident action plans (IAPs). The planning section is established as needed to manage an incident or event. It collects, evaluates and displays incident information, prepares and documents incident action plans, tracks resources assigned to the incident, maintains incident documentation and develops plans for demobilization. The section also maintains information on the current and forecasted situation, and on the status of resources assigned to the incident.

Under typical public works operations a big example of activities under the planning section is best represented by inspection staff that observe construction projects, track their process, monitor quantities, and conduct similar actions. Other technical specialists within a planning section could include bridge inspectors and/or structural engineers. Other activities could include staff developing situation status reports, work plans or tracking progress on projects. Work flow and asset management software could fall under the planning-section-type activities.

During an emergency situation response, the planning section for public works could be taking on tasks such as developing plans for managing debris removal and disposal, providing summarized reports on the damage assessments of critical infrastructure, tracking public works staff and equipment out in the field to make sure everyone is accounted for, tracking mutual aid public works staff and equipment that are responding to provide assistance, and it would also develop plans to track when both internal and external resources finish their assigned tasks.

Logistics Section

The logistics section is responsible for ensuring that there are adequate resources including personnel, supplies and equipment for the incident or typical operations.

During typical public works operations this task would likely be spread out among many staff, generally grouped by area of assignment (such as streets, utilities, parks, buildings, fleet, etc.). Some tasks that impact public works may be completed by staff not within the public works department.

During an emergency response, it may be likely that staff from within the public works department would need to be assigned to a logistics section to provide support to public works operations. This could include fueling vehicles out in the field, procuring additional equipment/parts, transporting staff between sites, providing food/water for staff, providing sleeping accommodations for staff, and addressing other needs that are essential in supporting overall response operations.

Finance/Administration Section

The finance/ administration function manages paying for the incident or event response. This includes all aspects of financial and cost analysis: contract negotiation, tracking personnel and equipment time, documenting and processing claims for accidents and injuries occurring at the incident and keeping a running tally of costs associated with the incident. The finance/administration section works closely with the logistics section to contract for and procure the resources needed to manage the incident.

During typical public works operations, depending on the size of the local government, these functions could be provided within public works or outside of public works.

During emergency response, like typical operations, these functions could be provided within public works or outside of public works. Public works staff at all levels in all scopes of the response need to understand the importance of documentation and information sharing. Effective emergency response is dependent on proactive information sharing and tracking. Just because a staff member is not in a finance/administration section does not relieve the person of a responsibility to conduct and support documentation efforts. Documentation is vital for the reimbursement process during recovery and it is imperative that finance/administration provides strong guidance during day-to-day operations and emergency response for personnel to keep track of time and equipment usage.

Application of Incident Command in Public Works

Let’s use a scenario to take a look at some of the responsibilities and actions that might be taken by the different roles in the ICS organization. In the first scenario, please consider day-to-day public works operations. How could these typical operations fit into the ICS framework? What are some of the actions and responsibilities you will need to consider under each ICS management function? Who completes what tasks?

Use the table below to complete how your day-to-day organization would look in ICS:

ICS Management Function	Responsibilities
Command	
Safety	
Public Information	
Operations	

Planning	
Logistics	
Finance/Administration	

Now, consider an emergency situation that could, or has, impacted the community you serve. Remember, this does not have to necessarily be an extreme event (mass tornado outbreak, Category 5 hurricane, earthquake with a rating of 9, etc.). What public works operations during the response fit into each ICS management function? Who completes what tasks?

Complete the table below for an emergency situation that may be common in your community:

ICS Management Function	Responsibilities
Command	
Safety	
Public Information	
Operations	
Planning	
Logistics	
Finance/Administration	

The following is one possible incident command structure for a water main break example.

ICS Management Function	Responsibilities
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Command	Public works maintenance manager. Oversee all operations.
Safety	
Public Information	City communications staff. Push the word out on social media and other outlets of the road closure due to the water main break.
Operations	Under the operations section two different groups would be formed. 1) Water main break repair group which would be responsible for the dig site, making the repair, and restoring the street 2) Traffic control group which is responsible for providing traffic control/detouring around the dig site.
Planning	
Logistics	This would be handled under the typical public works operations process for obtaining equipment and other resources.
Finance/Administration	This would be handled under the typical processes for finance and administrative tracking.

Unified Command

Under ICS, unified command is used when incidents involving multiple jurisdictions or agencies operate together to form a single command structure. Unified command enables agencies with different legal, geographic, and functional responsibilities to coordinate, plan, and respond effectively. There could be an incident, such as a landslide or dam incident that would have public works in unified command with law enforcement and fire. Under unified command, there is only one operations section and public works would be a unit under the operations section.

Conclusion

Public works staff provides essential skills, resources, equipment, and expertise for the infrastructure that make normal life happen in the communities they serve. Public works professionals are first responders and have a role and responsibility to a unified command structure. The term “first responder” is not just another hat to be worn, but it is a responsibility. It is a duty to act, to be engaged, and work beyond a department silo. It is essential that public works professionals understand the importance of the first responder duty, which is to save lives and property, and to stabilize the incident. Public works professionals should not wait until after something bad has happened to act but should be proactive in their efforts. Part of being proactive is learning about ICS, making efforts to implement ICS wherever possible, and committing to working and training with other first responders to employ the ICS process during an actual emergency or other event.

For additional information:

- FEMA ICS Resource Center, <https://training.fema.gov/emiweb/is/icsresource/>

- Additional ICS Training, <https://training.fema.gov/>
- <http://www3.apwa.net/Resources/Reporter/Articles/2017/1/Public-works-professionals-have-a-duty-to-act>