THE LESS-LETHAL LANDSCAPE

WHAT POLICE NEED TO KNOW

CSI COMBINED SYSTEMS®

POLICE 1

ANSWERS TO POLICE USERS' MOST COMMON QUESTIONS ABOUT LESS-LETHAL WEAPONS

WRITTEN BY
John Erich, Police1 BrandFocus Staff

Protests have always been an aspect of civic life in America. But since 2020 they've become a regular feature in many cities, with a ferocity that has often challenged law enforcement's ability to maintain order. And over the last few years, their numbers seem to be increasing.

In 2022, the Crowd Counting Consortium, an academic effort to document U.S. demonstrations and protests, recorded 27,700 rallies, marches and similar public events. The next year, that rose to more than 29,500. The group doesn't have a tally for 2024, but the year saw significant protest activity around conflicts in the Middle East, particularly on college campuses. In 2025 protests have been ongoing across the U.S., the largest, according to organizers, involving more than 2,100 events and 5 million participants on June 14.

Most of those, of course, have been nonviolent – but not all. Frequently in 2020 and occasionally in 2024 and '25, law enforcement has had to deploy less-lethal force to quell violence, disperse protesters and protect rights and property. The current political climate suggests the potential for violence will continue in the near future.

Whether you're preparing for the potential of disruptive protests or just seeking the best tools to protect officers and preserve life in day-to-day operations, departments should consider equipping their personnel with a range of less-lethal force options, as well as the training and judgment to support their safe and effective deployment.

"The tactical approach to things can be a matter of degree and a matter of the environment and situation. There will always be a little bit of a different twist to it."

– Paul Ford, VP of Sales and Marketing, Combined Systems

This white paper reviews the questions most frequently asked of leaders at Combined Systems (CSI), a prominent U.S. provider of less-lethal tools and training for law enforcement. It is intended to serve as a long-term educational resource that addresses police users' common concerns around the different types of less-lethal weapons available to them and how to optimize their use.

Question 1

What types of less-lethal options should my department have on hand, and in what quantities?

There is not a simple answer to this or standard framework that can be easily applied. The answer for your department will start with the kind of jurisdiction you have and threats you normally face.

"It really depends on your mission and environment," said Paul Ford, Combined Systems' vice president of sales and marketing and a former police officer in Texas. "The munitions you should carry will really depend on your operational tempo. How often are you going out on SWAT missions? How often do you have barricaded subjects? How often do you train? You're going to have to be the best judge of quantity with respect to those questions."

While you should be primarily guided by your own community's historical data and threat assessments, some standard practices have emerged among departments that want to equip everyone on duty with at least some options while keeping control of matters like costs, training time and shelf life.

At the individual level, in major cities, all sworn officers typically get batons and conducted-energy weapons like TASERs. Those in the field also typically get OC/pepper spray – generally a canister each – which is the most-used less-lethal option in U.S. law enforcement. Some experts recommend stocking an extra 10% of these for leakage and expiration. They have a shelf life, so plan for periodic bulk replacement.

At the patrol vehicle level, 40mm and 12-gauge impact munitions are staples for managing incidents involving single subjects and small crowds. A practical rule of thumb followed by some departments is to equip a reasonable number of patrol units with a dedicated launcher and an allotment of less-lethal rounds.

Sticking with one platform here is an advantage for several reasons. Uniformity simplifies training and reduces users' cognitive load at stressful times; reduces the error risk of switching between systems; streamlines maintenance and supply; and supports interoperability during major responses.

With impact munitions, a review of operational usage by major departments as well as vendor and NIJ training guidelines suggests having 25 rounds per launcher for patrol, plus 50 each per year for training. With PepperBalls and related items, consider one per patrol sector or transport wagon, with 250 live and 250 training rounds apiece.

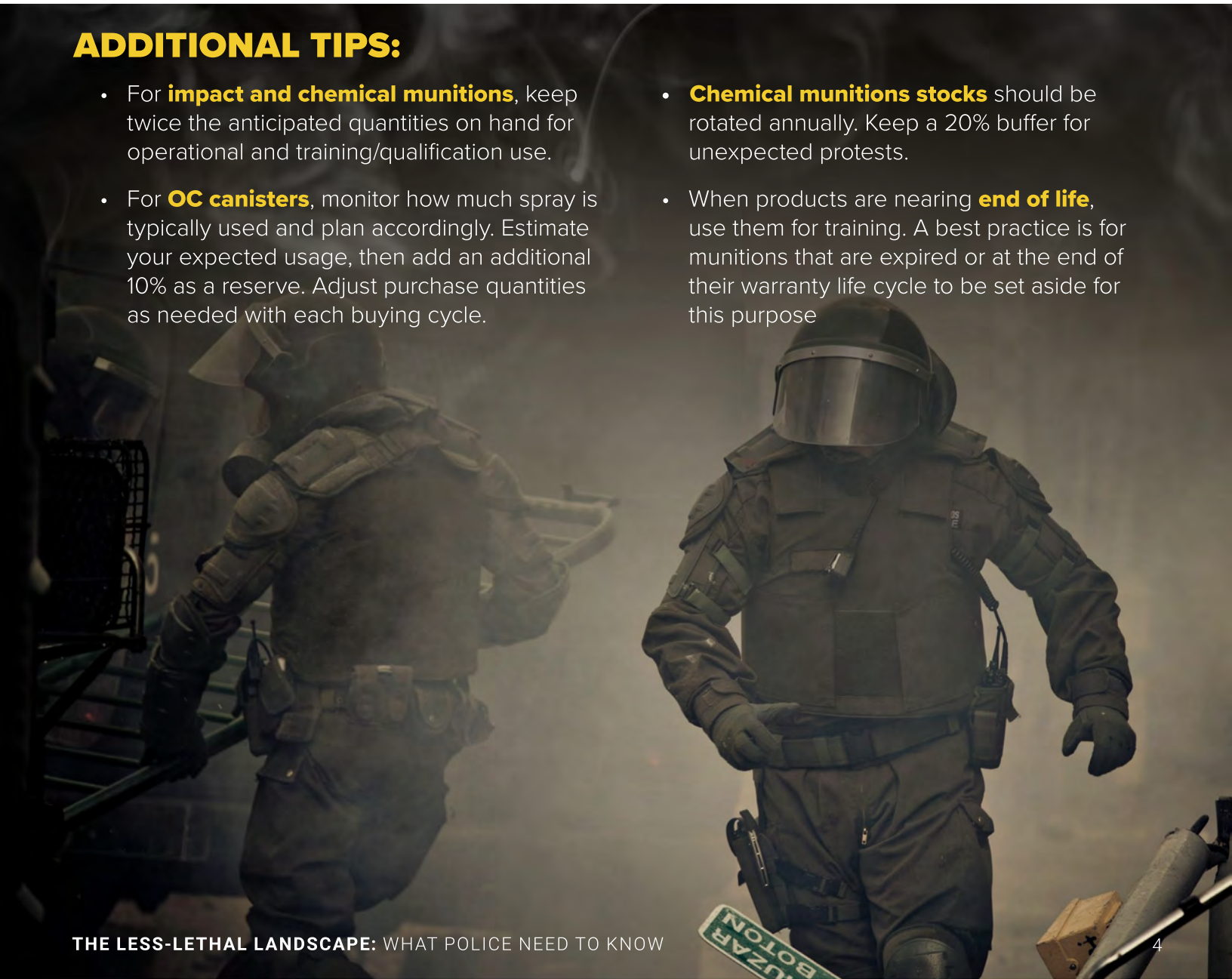
For crowd control and tactical situations, appropriate quantities for every 100 frontline officers may include:

- For **CS and OC canisters,** 40 tactical and 40 training per year.
- For **white and colored smoke canisters,** 20 tactical and 20 training per year (more if you have regular deployments for civil disturbances).
- For **flash-bangs and diversionary devices,** two per tactical operator on hand, plus two more per training cycle.
- For **40mm foam and sponge rounds,** 60 tactical and 60 training per year.

An important caution: Especially with big-ticket items, complete the relevant instructor-level training and necessary education before making purchasing decisions. “We often speak to agencies that have made purchases, only to find out they don’t need that particular munition,” said Ford.

ADDITIONAL TIPS:

- For **impact and chemical munitions**, keep twice the anticipated quantities on hand for operational and training/qualification use.
- For **OC canisters**, monitor how much spray is typically used and plan accordingly. Estimate your expected usage, then add an additional 10% as a reserve. Adjust purchase quantities as needed with each buying cycle.
- **Chemical munitions stocks** should be rotated annually. Keep a 20% buffer for unexpected protests.
- When products are nearing **end of life**, use them for training. A best practice is for munitions that are expired or at the end of their warranty life cycle to be set aside for this purpose



Question 2

Which choice is best for my scenario?

Decisions about the platform, munition or aerosol defense option to use in a given situation should reflect tactical, environmental, legal and medical considerations and be periodically revisited.

Combined Systems offers published information and training guidance that groups its products by their most appropriate mission uses. Its products include impact munitions, flash-bangs and Sting-Balls, irritant munitions, aerosol defense sprays, breaching munitions and more.

For law enforcement, there are three key mission areas covered in the company's guidance.

- For **patrol uses,** appropriate less-lethal platforms include impact munitions, duty belt-size aerosols, pocket-size irritants and smoke grenades.
- For **public order situations,** consider outdoor irritant grenades and projectiles, smoke munitions, high-volume aerosols, impact munitions, Sting-Ball grenades, multi-effect grenades and warning munitions.
- For **SWAT scenarios,** have aerosols, indoor irritant munitions, flash-bangs, impact munitions, fire-suppression units, door-breaching rounds and accessories.

Generally, weapon selection should reflect tactical objectives and the level of the threat confronting officers. For close to midrange control of aggressive subjects, conducted-energy and aerosol defense weapons would be appropriate. For standoffs with noncompliant and potentially violent subjects, impact munitions are a better choice. For crowd control, think OC or CS agents and multi-effect blast and Sting-Ball options in open spaces. Never rule out the need to be target-specific with some individuals; 12-gauge and 40mm marking munitions can be indispensable for this. Distraction devices, barricade-penetrating irritant munitions, and grenades designed specifically for indoor use

are the staples for teams dealing with barricaded subjects and high-risk entry situations.

Combined Systems has developed a proprietary model to help guide force decisions in training and the field. Known as “Degree of Force – Consequence” or DEFCON, it reflects that the use of less-lethal force can be dynamic, requiring quick escalation and de-escalation, with moments of overlap and decision points that aren’t always distinct.

DEFCON has six levels:

- **DEFCON 1 – Physical presence:** In the best-case scenario, law enforcement’s arrival on scene is enough to restore order.
- **DEFCON 2 – Verbalization:** If mere presence alone doesn’t inspire cooperation, the next level is verbal instruction, perhaps escalating from asking to telling to commanding.
- **DEFCON 3 – Soft pain compliance:** Continued physical resistance by an uncooperative subject may be addressed with small amounts of OC or CS spray, causing discomfort or pain.
- **DEFCON 4 – Intermediate control techniques:** The next level may involve low-energy impact weapons or larger amounts of irritant smoke delivered by grenades or projectiles.
- **DEFCON 5 – Suppress and degrade:** The most forceful less-lethal responses may entail high-energy impact munitions and low explosive distraction devices.
- **DEFCON 6 – Lethal force:** Imminent threat of death or serious injury requires deadly force, normally the use of a firearm.

For more on the DEFCON framework and other training needs, visit Combined Systems.

Question 3

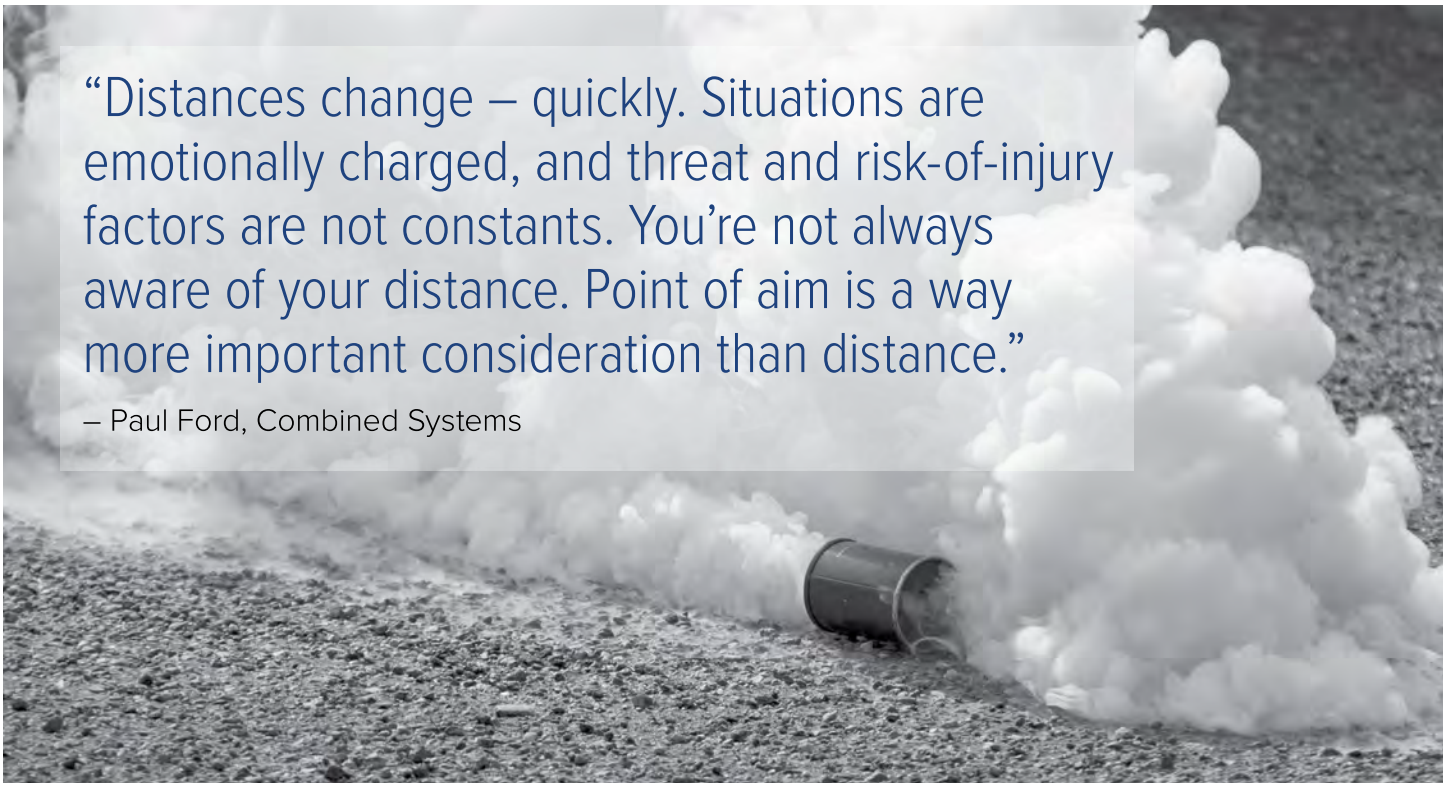
What are optimal deployment ranges for impact munitions?

Many manufacturers of impact munitions cite optimal deployment ranges and distances. Combined Systems, however, advises a more nuanced approach. It teaches that, rather than adhering solely to static, one-size-fits-all values recommended in theory, users should consider point of aim and other dynamic circumstances during encounters in the field.

"This is the most controversial position we take," said Ford. "Some manufacturers have established minimum distances for all their products and tell you not to use these products inside those distances. With the exception of one impact munition we manufacture, what we're telling you is that the tool we've given you can be used at any distance. We're not saying to bash somebody in the chest who's standing right in front of you, but if the threat requires it, you just change your point of aim, and it then becomes a less-lethal pain compliance tool. You can hit somebody on their thigh, shin or the top of their foot, and it's very effective and not lethal. For me that's a more commonsense and good-judgement approach."

Consider also the variation in potential targets. At the same distance, a combative but frail elderly person and a larger, younger person under the influence of alcohol or drugs may not require the same amount of force to subdue. "Human effect and potential injury outcomes at a given distance become arbitrary when all these other variables are in play," added Ford.

"A rigid minimum safe distance policy for less-lethal impact munition risks creates a false sense of certainty, and worse, can leave manufacturers, agencies and individual officers exposed to undue liability. Real-world encounters are fluid and unpredictable – distances shift, threats escalate, and conditions rarely mirror controlled testing environments. By framing policy around an arbitrary distance, agencies risk misrepresenting the operational realities of these tools, constraining officer discretion and inviting misinterpretation in legal or public scrutiny. A more defensible approach emphasizes proper training, target selection and situational judgment rather than a one-size-fits-all approach ignoring complexities of the field."



"Distances change – quickly. Situations are emotionally charged, and threat and risk-of-injury factors are not constants. You're not always aware of your distance. Point of aim is a way more important consideration than distance."

– Paul Ford, Combined Systems

Question 4

What's a proportionate use of an agent like tear gas in various situations?

There are formulas, based on concentrations and minutes of exposure, for determining incapacitating and lethal concentrations of tear gas inside closed unventilated buildings. That's covered in CSI's training, and officers should learn and understand the "LCT-ICT" deployment model. But while that can be a useful guide in some situations, it should not be the sole determinant of how much CS agent to use.

"For outdoor crowd management, the concept I've been taught and always followed is, 'The key is to see,'" said Ford. "Deployment volumes in a crowd control situation should never be so much that the cloud of agent becomes so dense you can't see through it." That's a matter of basic officer safety and being able to see threats coming at them.

Indoor tear gas situations are different. They usually involve barricaded subjects SWAT officers are attempting to detect or dislodge from hiding, rather than general crowds they want to disperse. This requires a more strategic approach.

"If you have a guy you know is hiding in an attic, for example, it really doesn't do you a lot of good to put a lot of tear gas into the house, as opposed to just the attic," said Ford. "If you don't know where they are in the house, you should be probably thinking about a step-by-step approach to putting tear gas in every part of the house, either methodically or all at once."

Methodically, in this context, likely means starting with the deepest reaches of a structure – the places where you'd least want to confront a suspect – and working backwards room by room.

It sounds contradictory, but a common mistake using tear gas during a barricaded subject situation is not using enough CS and not giving it enough time to affect the subject and produce the intended outcome. Alternatively, deploying tear gas ahead of a search also raises timing considerations – wait too long, and a subject who's incapacitated may recover. "These are real strategic thinking tasks," added Ford. "It's not like one gas plan is the right gas plan for every outdoor or indoor situation."

ABOUT CS:

Following the protests of 2020, some groups raised questions about the safety of CS. Invented in 1928, it's been widely used as a tactical, riot control and training agent for nearly a century now and is common in the U.S. as an alternative to more severe methods of force. Thorough testing has determined its lethal and incapacitating dosages indoors and established its safety when used outdoors.

Combined Systems' CS complies with military standards and is manufactured in house under strict quality control, with raw materials disclosed per OSHA requirements. Performance is guaranteed for five years.

Question 5

What training do I need and why?

Training is perhaps the most important component to any use of less-lethal weapons. Obtaining instructor-level training and certification from manufacturers demonstrates users' depth of technical knowledge around products, their risks and aspects of their use. It also shows your community, critics and potential juries that you're taking steps to act responsibly and remain safe around all uses of force.

The benefits of quality training include:

- **Confidence:** Thorough knowledge will equip officers to act decisively when moments matter. If they've not absorbed a classroom briefing and practiced with their tools, they may experience uncertainty and dangerous delays.
- **Risk awareness:** All less-lethal products carry risks. These can include fire with certain devices, as well as injury potential to subjects, officers and bystanders. Training will explain and explore these risks and provide the knowledge to manage them.

- **Articulation:** A full understanding of your less-lethal weapons, what they can do and when to employ them equips officers to educate the public, justify their use and benefit their department's public image.

All Combined Systems training is instructor-level, aimed at providing the deepest and most functional understanding to those using their products.

"Officers using less-lethal weapons need training, no exceptions, period, full stop," said Ford. "At this point in the history of law enforcement, why some agencies still skip this important step is just beyond me. Manufacturer training will give officers the grounding to use the product the way it was intended, manage the known risks associated with the use of these products, and be able to articulate justification for their use in reports, courtroom testimony and to the public and media."

Question 6

Can you confirm less-lethal weapons won't cause serious injury?

The short answer to this is no – but that doesn't mean they're unsafe.

In dynamic crowd situations, targets and bystanders are moving, views can be obscured, and bad actors can mix with the innocent. Even with the most cautious of operations, there's ample potential for mishaps, including striking the wrong target, igniting fires, impacting vulnerable body parts, exacerbating underlying conditions and creating secondary trauma from falls and other mechanisms.

When devices are used correctly and in accordance with training, however, these incidents represent an exceedingly small proportion of overall uses of less-lethal force. "When the product is used for the purpose it was intended and in accordance with the manufacturer's guidelines, these negative outcomes are very unlikely," emphasized Ford.

"All weapons have failure rates. Every less-lethal option should be backed up with a lethal force option in case you need it, and every less-lethal option should be supported by a backup plan in case it doesn't work."

– Paul Ford, Combined Systems

Question 7

How do costs compare, and how can I keep my use cost-conscious?

Preserving life isn't cheap. Impact munitions, for example, cost more than standard live ammunition for reasons that include design complexity, materials, regulatory requirements and production volumes. Their manufacture requires specialized materials, stabilizing mechanisms and special propellants, and they are not produced in the same volumes as regular ammo. Manufacturers must also conduct rigorous testing.

As with any significant purchase, departments must balance any increases in cost against expected benefits to life and safety.

"There are ways to be more cost-efficient, especially when it comes to dedicated training products like the reloadable training flash-bangs and impact munitions," noted Ford. "But at a certain point, every agency has to conduct a cost-versus-benefit analysis and decide, 'Do we make this investment or not?'"

Components of this analysis may include:

- **Tangible costs:** Upfront procurement costs, ongoing operational costs, opportunity costs (what may have to be sacrificed or delayed?).
- **Quantitative benefits:** Fewer injuries to officers, reduced civilian injuries and fatalities, fewer use-of-force complaints and lawsuits, insurance savings.
- **Qualitative benefits:** Public perception and community trust, officer confidence and morale, operational flexibility.
- **Risk mitigation factors:** Reduced legal risk, need for training.
- **Evaluation metrics:** How will outcomes be measured and success determined?

Conclusion

Less-lethal tools aren't a one-size-fits-all solution. But when they're chosen thoughtfully, backed by strong training and deployed with judgment, they offer law enforcement a critical means to manage conflict while minimizing harm. In an era of frequent demonstrations and heightened scrutiny, departments must equip their officers to respond safely, flexibly and effectively. That investment requires thought and planning, but the benefits – to community trust, officer safety and public order – can be substantial. P1