



THE RELOAD GAP

Why Fast Follow-Up Capability with 40mm Less-Lethal Systems Is a Force-Continuum Imperative

A White Paper on Equipment, Training, and Officer Decision-Making Under Time Pressure

Written by Kinetic Co. (KNTX) | www.kntx.org | August 9, 2026

Executive Summary

Less-lethal 40mm impact munitions exist to close a critical gap in the use-of-force continuum: the space between verbal de-escalation and deadly force. But a launcher is only as effective as an officer's ability to keep it in the fight. When a first round fails to gain compliance, as national use-of-force data show happens routinely, the officer's next decision is made in seconds, under stress, and often with a threat that is actively closing distance. If a fast, reliable follow-up round is not immediately available, the practical result is that officers are pushed toward the next tool on their belt, which is frequently the sidearm.

This paper examines the operational and life-safety case for prioritizing follow-up shot speed: reload mechanics, munition accessibility, and launcher handling, as a core design and training requirement for 40mm less-lethal programs, not an afterthought to it.

1. The Force Continuum and the Purpose of 40mm Systems

Use-of-force continuums exist to give officers a structured way to match their response to the level of resistance they face, and to create a documented, defensible basis for that decision under case law standards such as *Graham v. Connor*.

The 40mm launcher occupies a specific and valuable position on that continuum. Compared to a conducted energy weapon (CEW), which has an effective engagement range of roughly 10 meters, a 40mm platform extends an officer's less-lethal reach to approximately 40 meters, allowing distance-based de-escalation that keeps officers and subjects farther apart while options are still being weighed.

The more we can get these less-lethal rounds in the hands of our officers, the less likely that bad scenarios will continue to deteriorate to the point where the only option left is lethal force. • Chief Mike Koval, Madison, WI Police Department

2. What the Data Show: First-Round Success Is Not Guaranteed

The National Institute of Justice's five-year analysis of less-lethal weapon effectiveness remains one of the most cited studies of its kind. Examining thousands of use-of-force encounters, researchers measured how often a conflict ended at the officer's very first application of force:

69% CEW / TASER	65% Chemical Agents	45% Impact Weapons	16% Compliance Holds
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Impact-munition tools, the category 40mm rounds fall into, ended confrontations on the first application less than half the time. That means, in a substantial share of real-world encounters, an officer's first round will not resolve the situation, and a second application of force is required. The same research found that injury rates to both officers and suspects rise as encounters extend into a second and third iteration of force, meaning the interval between rounds one and two is not a neutral pause; it is the point where outcomes get worse for everyone involved.

Separately, Department of Justice-funded research on impact munitions has documented that when officers must resort to standard firearms, close to half of the citizens struck do not survive their wounds, underscoring why keeping an encounter inside the less-lethal window, for as long as possible, is itself a life-saving objective.

3. The Reload Bottleneck: Where Seconds Are Lost

A launcher that cannot be brought back into action quickly forces an artificial choice on the officer holding it. Most duty-issued 40mm platforms in patrol use are single-shot break-action systems. Once fired, the officer must physically break the action, extract the spent hull, retrieve a fresh round, seat it, and close the launcher, all while maintaining situational awareness of a subject who has just demonstrated, by definition, that the first round did not achieve compliance.

In practical terms, that reload sequence depends on three things going right under stress:

- The officer knows exactly where the next round is without looking away from the threat.
- The round is oriented and accessible for a one-motion retrieval, not buried in a pocket or dump pouch.
- The launcher mechanics themselves do not require fine motor skills that degrade under adrenaline.

Equipment and patent literature in this space has long recognized reload speed as a distinct safety variable in its own right: one U.S. patent for a speed-loading assembly for less-lethal cartridges notes plainly that by affording officers the ability to quickly reload, the time frame in which they retain the option to use less-lethal force is directly increased. That is the entire premise of this paper stated as engineering fact: every second added to a reload is a second subtracted from the less-lethal window.

4. Consequences of Delay: The Path Back to Lethal Force

When a follow-up less-lethal round is not readily available, agencies and courts have documented a consistent pattern: officers do not simply wait longer on an ineffective tool. Policy in most agencies requires officers to reassess after every discharge and discontinue a tactic that is not producing the desired effect, but reassessment under a closing threat, with no immediate less-lethal option to escalate to, leaves few paths besides transitioning to a firearm.

This is not a hypothetical failure mode. It is the specific scenario that use-of-force policy is designed to prevent: a subject who continues to advance or resist after an initial less-lethal application, and an officer whose only readily accessible next tool is lethal. Closing the reload gap, through faster mechanics, better-organized carry systems, or purpose-built retention and reload hardware, directly shrinks the number of encounters that reach that point.

5. Equipment as a Force Multiplier for Time

Training addresses judgment. Policy addresses accountability. But raw reload speed is fundamentally an equipment and ergonomics problem, and it is one of the few variables in a use-of-force encounter that can be meaningfully improved before the officer ever arrives on scene. A carry system that keeps spare rounds oriented, protected, and immediately indexed to the launcher, rather than loose in a pocket or a generic pouch, removes fumbling, hesitation, and wasted motion from the highest-stress seconds of the encounter.

Agencies evaluating 40mm programs should treat follow-up-shot speed as a measurable performance requirement during procurement and range qualification, in the same way accuracy and reliability are already measured. A launcher that groups well on paper but is slow to reload in a dynamic, moving qualification course has not actually solved the problem this paper describes.

6. Closing the Gap: The Kinetic Co. 40mm Double Shell Caddy

Kinetic Co. (KNTX) designed the 40mm Double Shell Caddy specifically to answer the reload problem described in this paper. Rather than treating spare rounds as loose cargo in a pocket or generic pouch, the caddy is printed as a single, continuous piece in PETG-CF and mounts directly to the duty belt or plate carrier via a slotted, hose-clamp-style barrel loop secured with brass heat-set inserts, putting two rounds in a fixed, known, indexed position every time.

Each of the caddy's two shell bores is held by four spring-loaded 6mm stainless steel detent balls, giving the officer secure retention during movement, pursuit, or a physical struggle, while still allowing a single-motion draw under stress: the exact one-motion retrieval this paper identifies as a requirement for closing the reload gap. There is nothing to unsnap, unzip, or dig for.

In short, the caddy converts the abstract goal of "faster follow-up shots" into a concrete, fielded piece of equipment: a fixed number of known-position rounds, retained securely, accessible in one motion, built to survive the same conditions the launcher does. For agencies evaluating 40mm programs against the recommendations in Section 7, the Double Shell Caddy is a direct, low-cost way to close the specific gap this paper describes. Full specifications and pricing are available at www.kntx.org.

7. Recommendations

- Incorporate timed reload drills, not just accuracy drills, into 40mm qualification and requalification standards.
- Evaluate carry and retention hardware for spare rounds as a distinct procurement category, not an accessory afterthought.
- Track time-to-second-round as a use-of-force reporting data point where feasible, to build agency-level evidence on where delays occur.
- Brief officers explicitly on the data: first-round success with impact munitions is realistically below 50%, and planning for a fast second round is standard practice, not a sign the first round failed improperly.
- Evaluate purpose-built retention hardware, such as the Kinetic Co. 40mm Double Shell Caddy, against current carry methods during procurement and range trials.

Conclusion

The case for 40mm less-lethal systems has always rested on their ability to keep officers out of the binary choice between doing nothing and using deadly force. The data show that this promise depends heavily on what happens in the seconds after the first round is fired. A program that fields capable launchers and effective munitions, but does not engineer for fast, reliable follow-up shots, has only solved half the problem. Closing the reload gap is not a marginal equipment upgrade: it is a direct, measurable contributor to keeping encounters resolvable without lethal force.

Kinetic Co. built the 40mm Double Shell Caddy to be that equipment answer. Agencies and officers can review specifications and order directly at www.kntx.org.

Sources: National Institute of Justice, "Less Lethal Weapon Effectiveness, Use of Force, and Suspect & Officer Injuries: A Five-Year Analysis" (ojp.gov); NIJ, "Impact Munitions Data Base of Use and Effects" (ojp.gov); Rampart Corp, "De-Escalating on the Front Line with 40mm Projectile Launchers"; U.S. patent literature on less-lethal speed-loading assemblies. Written by Kinetic Co. (KNTX). www.kntx.org.