



### What is the definition of HVSA?

As an industry standard, HVSA is clothing (e.g. vests, bibs or coveralls) that workers can wear to improve how well other people "see" them. Most often, high-visibility clothing is worn to alert drivers and other vehicle operators of a worker's presence, especially in low light and dark conditions, and is typically made of either florescent or retroreflective material – or both, to pack a greater punch and address both day and nighttime visibility challenges.

Fluorescent material takes a portion of invisible ultraviolet light from sunlight, and through special pigments, sends it back to the viewer as more visible light, and only functions where there is a source of natural sunlight. Fluorescent material will appear brighter than the same colored non-fluorescent material, especially under low natural light (i.e. cloud cover, fog, dusk, dawn). This property offers daytime visibility enhancement not present with other colors by providing the greatest contrast against most backgrounds.

Retroreflective material is created to return light in the direction of the light's source, which will let a driver see the light being reflected from the retroreflective material on a person's garment (as long as the person is standing in the light's beam and is less than 250 feet away from the light source). Retroreflective materials are most effective under low-light level conditions. While retroreflective materials can still reflect in the daylight, there is little difference between the light reflected from the garment's material and the surrounding environment, which makes them ineffective for enhanced visibility during (sunny) daytime conditions

## Guardian Angel® Device Augments Safety Vests



Those who work on roadways across the country currently use 425, Inc.'s Guardian Angel, a wearable, portable, lighted safety device, to give them extra visibility they need no matter where they are – on a dark rural road, on the side of a major freeway, or in the middle of a large crowd. While they wear safety vests in many of those situations, the Guardian Angel adds significantly to their long-range visibility – improving overall safety.

### Adding to Safety Vests – Creating a Comprehensive, Cost-effective Safety Solution

The benefits of increased visibility for those who work roadways on the job have been well-documented over the years: in fact, the goal of increased roadway safety for emergency response teams led to the passing of the 2008 federal regulation in the United States – the "Worker Visibility Rule" – mandating that anyone working in the right-of-way of a federal-aid highway must be wearing high visibility (reflective) clothing. Similar laws and standards exist in Canada as well as the European Union (EU) for the same reason they do in the U.S.: **the rate of on-the-job injury is much higher when people who work in roadway areas – whether they're emergency responders or road construction crews – are not highly visible.**

Industry data underpinned these federal regulations: The Virginia Transportation Research Council found that fluorescent colors enhanced the daytime conspicuity of highway worker's clothing, and various studies at the University of Michigan concluded that reduced visibility contributes significantly to pedestrian accidents at night.

Based on the long-standing, demonstrated benefits to increased visibility, safety professionals around the globe have consistently recommended different types of clothing depending on lighting conditions, job responsibilities, and background – and thus was born high-visibility safety apparel (HVSA).

Today, HVSA is standard fare for roadway workers – from firefighters to construction workers to police officers – an addition to the job "tool belt" that maintains high degrees of approval from roadway workers themselves. In fact, a study completed in 2007 by the Institute for Police Research (IPR), found that police officers wanted and needed increased visibility (at some times) on the job.

Small personal lighted devices – such as the Guardian Angel® – compliment other personal safety devices for first responders. Adding to a professional “tool belt,” personal light bars can provide enhanced safety and visibility for the wearer – and serve as a valuable compliment to HVSA in the following ways:

- Personal light devices provide greater enhanced light that can be seen from more than two miles away, from above, and from a nearly 360-degree radius around the wearer, significantly increasing the the visibility provided by HVSA.
- With a variety of color combinations available, wearers can reflect the official colors of their professional establishments on their person using a personal light device (with combinations such as red and blue for police officers, for example, or red and white for fire departments).
- Rechargeable, long-lasting batteries help ensure a personal light device can be used in tandem with HVSA for more than 90 hours of continuous use – equal to more than ten professional emergency responder work shifts, or more than two standard work weeks.
- A rugged housing design prevents damage in extreme work conditions (i.e. water and fire resistant and capable of withstanding even the most punishing weather conditions).
- A modular mounting system ensure the personal light device can be utilized in many different professional applications (i.e. various uniform mounts, as well as also options such as window mount, bicycle or motorcycle mount, duty belt mount, or alternative metal-surface mount).



“According to the officers surveyed, a significant majority of the them in all five agencies expressed a desire for high visibility when conducting roadblocks, directing traffic, assisting motorists (stabilizing and taking down accident scene).”

The benefits to HVSA are well-documented, and the use of them has gone a long way toward improving the on-the-job safety of roadway workers by reducing injury and death related to roadway accidents.

But off the roads, visibility and recognition are still necessary for those who work on roadways and other professionals:



- Firefighters working together in a smoke-filled environment need ways to see one another;
- Civilians in a crowded park at night often can't tell who is or isn't a Public Safety Official in moments of distress;
- Construction crews working below the surface of the street can't always see one another to locate other members of their team; and
- Tow truck operators who need additional personal visibility as they load vehicles on roadways in evening or nighttime conditions.

The above are just a few common professional situations when additional official lighting could be critical – and where HVSA clothing isn't required to be worn by law or professional standard. In those instances, retroreflective and fluorescent clothing would also be of little to no help, as light sources aren't present to activate the HVSA benefits.

In addition, there are times when those working roadways want the benefit of extra visibility, but don't want to be hindered by extra clothing. Or they want to be able to activate their own personal light source when and where they need it.

The same study referenced earlier conducted by the IPR found that there were times when police officers wanted to maintain a lower degree of anonymity than a reflective vest allowed, and also that “between 38% and 50% of the officers at the agencies said they want improved access to their weapons and utility belts,” which was hindered by wearing the required reflective vest.

For example, in a situation where a police officer is pursuing a suspect, they may want to operate in a “stealth” mode – which would require them to have no reflective properties on their uniform. But once they have the suspect apprehended, they may want to let other back-up officers know where they are by activating a personal light source.

Ultimately, using resources such as a personal lighted safety device allows emergency responders and other professionals to augment HVSA and other on-the-job safety benefits, ensuring all possible safety tools are being utilized.



**For more information on the Guardian Angel, please visit [www.425inc.us](http://www.425inc.us).**