

## HAWKs Come to Pedestrians' Aid

INDOT will be watching a new pedestrian crossing signal like a hawk to gauge its effectiveness, as it's only the second of its kind on our state highway system.

High-intensity Activated crossWalk (HAWK) signal heads, also called pedestrian hybrid beacons, started being installed in mid-September on State Road 45 in Bloomington. Installation is expected to be completed by November.

"HAWKs often are used to improve safety at mid-block pedestrian crossings, as vehicular traffic is required to stop when the beacon is activated, but — unlike a pedestrian crossing at a signalized intersection — they don't delay vehicular traffic when there is no demand, as the beacon is otherwise inactive," said Senior Engineer of Signals & Markings Joe Bruno. "Safety is enhanced because a HAWK allows for a controlled crossing at locations where signalization would otherwise not be provided."

Although several roadway treatments are available to address pedestrian concerns, only a few — such as HAWKs — are appropriate for conditions with wide crossings or medium-to-high roadway speeds.

The default settings for HAWKs are dark signal-head indications to vehicular traffic and a "don't walk" solid-hand indication to pedestrian traffic. Once a pedestrian pushes the crosswalk button, the HAWK displays a flashing yellow signal to vehicular traffic before turning to solid yellow, meaning that it will soon turn red. After the HAWK turns solid red, the pedestrian signal changes to a "walk" indication, enabling the pedestrian to legally begin crossing.



After the walk phase, a flashing "don't walk" phase begins with a numerical countdown. After this phase, the signal turns flashing red to vehicular traffic, meaning that vehicles need to stop but proceed through the intersection if safe to do so. Then, the default modes of dark signal-head indications and the "don't walk" indication appear. If another pedestrian pushes the crosswalk button, there is a predetermined time to allow vehicular traffic to clear before the sequence begins again.

*INDOT's first High-intensity Activated crossWalk (HAWK), also called a pedestrian hybrid beacon, is on State Road 127 near Angola.*

INDOT's first HAWK was installed on State Road 127 in the Fort Wayne District near Pokagon State Park in 2015. A crossing was needed to link a trail, which traverses on the east side of State Road 127 from near Angola to just south of Steuben County Road 300 North, where the location switches to the west side of State Road 127 to eventually connect to Pokagon State Park.

Following Federal Highway Administration (FHWA) guidelines, the district analyzed the possibilities of grade separation, a traffic signal, a HAWK, and a refuge island that includes a crosswalk with signs and flasher. These options were weighed against the 50 mph posted speed limit, the type of road, width of the paved highway, crosswalk length, and the average number of vehicles, pedestrians and bicyclists at the intersection. Also, traffic gaps were considered as part of the Indiana Manual on Uniform Traffic Control Devices (IMUTCD).

The district ruled out an uncontrolled, at-grade crossing because the number of adequate traffic gaps was determined to be insufficient. Traffic volumes were insufficient to support the installation of a traffic signal. However, the analysis left open the possibility for a HAWK or refuge island with crosswalk/signs/flasher.

"The median refuge island option included 6-inch curbs, and in order to meet design standards and provide a safer crossing for pedestrians, the speed limit would have needed to be reduced from 50 mph to 45 mph," said Fort Wayne District Traffic Engineer Dana Plattner. "A speed study by our office did not support this speed reduction because it was unlikely that the reduction in posted speed would have reduced actual vehicle speeds at the crossing. After analysis of all options, we concluded that a pedestrian hybrid beacon was the best solution taking into account safety and cost effectiveness."

More than three years later, Plattner is still happy with that decision.

"No crashes have occurred at the HAWK signal since it was activated in 2015," said Plattner.

The Seymour District's first HAWK installation will be constructed in a more urban environment near the intersection of State Road 45 and Tamarron Drive/Deckard Drive on the east side of Bloomington.

The resulting HAWK enables students in a neighborhood east of State Road 45 to cross into the neighborhood west of State Road 45 and use sidewalks there to walk to nearby University Elementary School.

To provide for greater pedestrian access to the school, the city of Bloomington recently finished installing sidewalks along State Road 45, curb ramps, and a pedestrian island to ease crossing of State Road 45. The gap study showed that there was less than the length of time required for students to cross the road at this uncontrolled location.

Another alternative was to signalize the higher-volume intersection of State Road 45 and Smith Road to enable students to walk to school. That intersection is just 500 feet away.

Considerations — including sight distance, mobility impacts, vehicular and pedestrian safety, and the optimal location for crosswalk utilization — resulted in a partnership with the city and a decision to install a pedestrian hybrid beacon close to Tamarron Drive/Deckard Drive.

The State Road 45 HAWK was designed by Traffic Design Manager Prakash Patel, who noted that recent FHWA research shows that HAWK sites experience a decrease in the total crash rate of 29 percent after installation.