

# Leading Pedestrian Intervals (LPIs) & Accessible Pedestrian Signals (APS)

## 8 Quick Facts

### 1. Leading pedestrian intervals increase pedestrian visibility to turning cars

Leading pedestrian intervals (LPIs) give pedestrians 3-7 seconds head start to begin their crossing before the parallel green light, allowing them to enter the crosswalk before turning vehicles begin to move.

### 2. LPIs can reduce vehicle/pedestrian crashes by 13-60%

Studies report a range of positive results from implementing LPIs; [Safety Evaluation Of Protected Left-Turn Phasing And Leading Pedestrian Intervals On Pedestrian Safety \(Goughnour et al., 2018\)](#) found a 13% overall reduction in vehicle/pedestrian crashes, with individual results scoring much higher, while [Safety Effectiveness of Leading Pedestrian Intervals Evaluated by a Before-After Study with Comparison Groups \(Fayish and Gross, 2010\)](#) found a 58.7% reduction.

### 3. LPIs are a low-cost proven safety countermeasure

The [FHWA list of Proven Safety Countermeasures](#) gives the following benefits for LPIs:

- Increased visibility of crossing pedestrians.
- Reduced conflicts between pedestrians and vehicles.
- Increased likelihood of motorists yielding to pedestrians.
- Enhanced safety for pedestrians who may be slower to start into the intersection.

### 4. But visually disabled pedestrians do not benefit from LPIs without APS

Blind or visually disabled pedestrians are trained to use the sound of parallel traffic to identify the beginning of the Walk interval. They do not benefit from the additional crossing time if it is only communicated visually.

### 5. LPIs without APS put blind pedestrians in danger

LPI's delay the beginning of traffic movement, which can place blind pedestrians in front of turning vehicles, leave them without sufficient time to complete their crossing before the Don't Walk signal, or even lead them to begin crossing after the Walk interval ends.

At LPI crossings, blind pedestrians can be expected to cross after the Walk sign has ended 15-38% of the time, and end their crossing in the Don't Walk phase 40-82% of the time. Source: [Leading Pedestrian Intervals at Urban Crosswalks: Effects on Safety for Travelers Who Are Blind \(Bourquin, Bieder, Emerson, & Franck, 2023\)](#)

### 6. APS allows blind pedestrians the benefits of LPIs.

Accessible pedestrian signals (APS) communicate the Walk signal audibly and through a vibrotactile arrow button, removing ambiguity and providing blind and visually disabled pedestrians equal access to the benefits of the LPI.

### 7. LPIs need APS to be ADA-compliant

The ADA and Section 504 of the Rehabilitation Act require public agencies to make their services, programs, and activities accessible to people with disabilities.

### 8. The 11th ed. MUTCD supports the use of APS at LPI intersections.

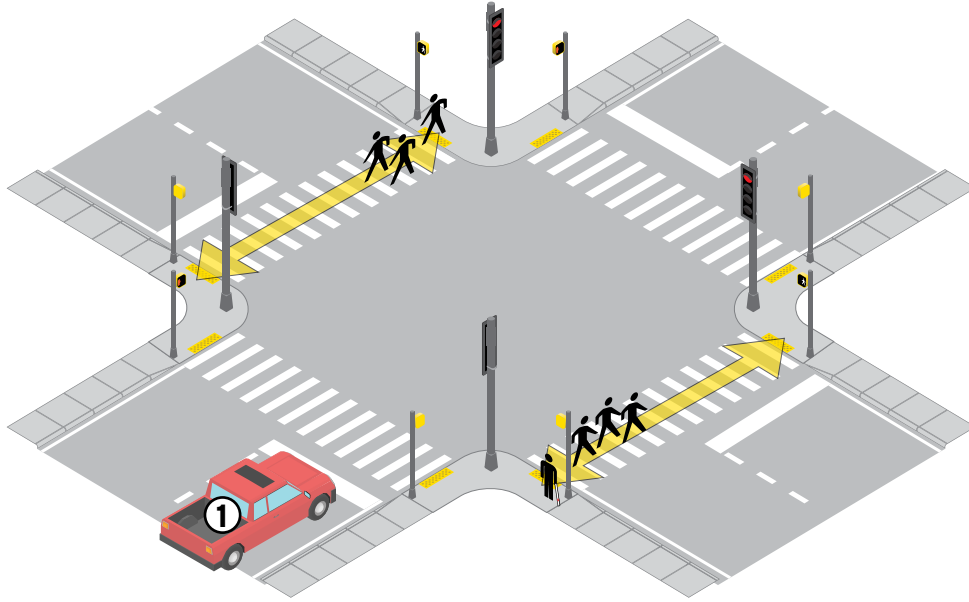
The 11th edition MUTCD requires pedestrian signal heads at any crossing with an exclusive pedestrian phase or LPI with all conflicting vehicles stopped (section 4D.02), and supports the use of APS at these crossings (section 4I.06).



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FOR MORE INFO



# LPI & APS Factsheet



## 1. Leading Pedestrian Interval

The WALK signal begins 3-7 seconds before the parallel green light, allowing pedestrians to establish themselves in the crossing before vehicles start to move.

Note the blind pedestrian, not hearing a surge in traffic, is unaware of the WALK and remains on the sidewalk.

## 2. Vehicular Green

Most pedestrians have had 3-7 seconds to proceed. Vehicles begin to move, and turning truck no. 1 yields to pedestrians already in the crossing. Truck no. 2 sees the blind pedestrian waiting, and believes they are not going to cross.

Now the blind pedestrian hears the surge in traffic, and believes the WALK interval has just begun.



## 3. Pedestrian Clearance Interval

The sighted pedestrians complete their crossings. The blind pedestrian begins their crossing, and comes in conflict with truck no. 2.