Definition

Signal timing adjustments designed to minimize conflicts between pedestrians and motorists. The four major adjustments are:

- A leading pedestrian interval (LPI) provides pedestrians with a few seconds of lead time prior to the onset of the associated vehicle phase.
- Slower walking rates (2.5 to 3.5 feet per second) may be programmed at intersections with or without pedestrian signal heads to account for young children, mobility-impaired, or elderly pedestrians.
- A leading pedestrian interval (LPI) provides pedestrians with a few seconds of lead time prior to the onset of the associated vehicle phase.
- Lagging left turn provides pedestrian with a few seconds of lead time prior to the onset of a protected left-turn phase.
- Right-turn on red restrictions often improves pedestrian safety

Objective

To provide adequate crossing times or to minimize conflicts between pedestrians and motorists at signalized intersections.

Advantage


Challenge

May increase signal cycle length and vehicle delay. Can create safety problems for vision-impaired pedestrians, since the traffic surge sound may be mistaken for parallel through traffic or is delayed, which would diminish crossing time for vision-impaired pedestrians.

Resources

Manual on Uniform Traffic Control Devices
http://mutcd.fhwa.dot.gov/ (See Section 4E.06).

FHWA Pedestrian Safety Improvements — Countermeasures (RTOR Restrictions)

Pedestrian and Bicycle Information Center — Signals and Signs

PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System

BIKESAFE: Bicycle Countermeasure Selection System (Turning Restrictions)

Selecting Leading or Lagging Left-Turn Signal Phases for Coordinated Intersections
http://www.academia.edu/1335226/Selecting_Leading_or_Lagging_Left-Turn_Signal_Phases_for_Coordinated_Intersections.

Chicago Pedestrian Plan (Tool Numbers 7 and 8, pp. 26-27)
http://chicagopedestrianplan.org/pedestrian-plan/.

Streetsfilm.org video on LPI
http://www.streetfilms.org/lpi-leading-pedestrian-interval/.

Images (clockwise from main image):
Example of a leading/pedestrian interval/turn restriction.
Source: Axleuk, Flickr.
Additional examples:
Sources: M.V. Jantzen, Flickr; Dylan Passmore, Flickr; William Yurasko, Flickr; National Association of City Transportation Officials (NACTO).