

# DESIGN ELEMENT: Leading Pedestrian Interval

## DISCUSSION

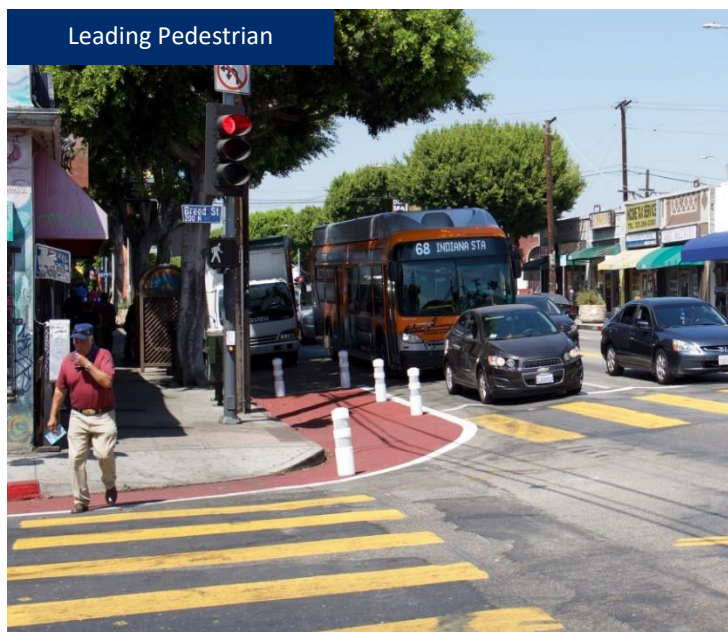
A **Leading Pedestrian Interval (LPI)** provides pedestrians and other sidewalk users with the opportunity to begin crossing the street at a signalized intersection before adjacent parallel through movement vehicles are permitted to proceed. This allows pedestrians and other sidewalk users to establish a presence in the crosswalk that likely increases their visibility to motorists. The LPI may be implemented by providing a WALK display between 3 and 7 seconds prior to the display of concurrent vehicular green indication for that direction of travel.

### *Benefits*

- Prioritizes pedestrian movements at intersections
- Increases pedestrian visibility to turning vehicles
- Reinforces pedestrian right-of-way
- Provides early WALK interval preceding the onset of the parallel green indication

### *Issues / Concerns*

- Since the LPI may increase traffic delay, its safety benefits should be weighed against any potential adverse impacts to transit service performance and vehicular capacity.
- Installations at freeway ramp signals and on State Highways require Caltrans approval.



## APPLICATIONS

1. LPI **should** be considered at crosswalks controlled by a traffic signal if **a.** or **b.** apply:
  - a. The WALK phase is actuated.
  - b. For crosswalk legs with non-actuated WALK phases, one of the following conditions exist:
    - i. There are high volumes of turning vehicles (at least 200 vehicles-per-hour per crosswalk during peak hours).
    - ii. The intersection is within 500 feet of a facility that attracts or generates a significant number of vulnerable users (children, seniors, persons with disabilities) such as a school, park, hospital, or senior center.
    - iii. The intersection is along a High Quality Transit Corridor (HQTC). A HQTC is defined in the Southern California Association of Governments *2016 Regional Transportation Plan/Sustainable Communities Strategy* as a corridor with fixed route bus service with service intervals of 15 minutes or less during peak commute hours. Note that LPI can have adverse impacts for transit routes operating parallel to the crosswalks where LPI is added.
    - iv. The intersection's geometry is atypical, resulting in unexpected conflicts and visibility issues.
2. If LPI is implemented for a particular signalized crosswalk leg of an intersection, then it should be implemented for the adjacent parallel leg as well. However, it is not necessary to be implemented for the perpendicular legs since those legs can be considered independently. Although LPI can be configured within most existing traffic signal phasing plans, specific cases may require the preparation of a new signal plan to revise the phase diagram (e.g., opposed phasing with a shared pedestrian phase) and may require a field modification of the controller. Additionally, when implementing LPI features for a crosswalk whose operation follows protected-permissive left turn (PPLT) phasing serving the left turn across the crosswalk in question, the controller will suppress the LPI feature in cycles when the left-turn arrow is served. The LPI feature will operate normally when the left-turn arrow is not served.

## DESIGN GUIDANCE

1. Pedestrians and other sidewalk users **should** be given the WALK indication between 3 to 7 seconds before concurrent vehicular movements are given a green indication.
2. The LPI **should** be timed so a pedestrian can travel across one lane of traffic or establish themselves in the intersection in front of turning vehicles, prior to the start of the parallel green.

## OPTIONS

1. Accessible Pedestrian Signals **should** be used at locations with LPIs to provide information to pedestrians and other sidewalk users who are visually impaired.

2. Where LPI alone is not observed to adequately mitigate conflicts between turning vehicle traffic and pedestrians and other sidewalk users in the conflicting crosswalk, additional features should be considered, which can supplement, or replace the LPI operation. Such features may include but are not limited to:
  - a. Part-time or full-time turn prohibitions during all signal indications.
  - b. Part-time or full-time turn prohibitions during red signal indications.
  - c. Protected-only or protected/permissive turn phasing. Note that protected turn phasing that allows the parallel through traffic movement to start at the same time as the LPI can help mitigate delay to vehicular traffic, including transit.
  - d. Curb extensions
3. At intersections with high pedestrian volumes where motorists have difficulty finding gaps to turn, the green time **should** be extended past the pedestrian clearance interval in order to accommodate the turning movement.

## APPROVAL PROCESS

1. While LPI installation requests can be initiated internally or externally, most requests are expected to be processed by the appropriate LADOT District Office. District Office staff **should** reference the selection criteria in the Applications section described above when considering feasibility.
2. In its evaluation, the District Office **shall** coordinate with staff from the Signal Timing section to assess the feasibility of the installation and to determine if any signal equipment upgrades are necessary.
3. If the District Office determines that an intersection merits the implementation of LPI, the District Office **shall** issue an internal memorandum to the Signal Timing section to request implementation of LPI. The District Office shall also inform any impacted transit agencies of the planned installation of LPI that may impact their bus routes.