



# LPI CASE STUDIES

## Locations

Hendersonville

Raleigh

Wilmington

# Implementing LPI in NC Cities

*Leading Pedestrian Interval (LPI) is a low-cost adjustment to signal timing that offers pedestrians a “head start” into the crossing before turning vehicles. LPI has been implemented in many cities and towns in North Carolina. NCDOT guidance supports widespread implementation of LPI. The following three case studies explain how LPI has been successfully applied in different contexts. Each case study highlights the information shown below.*

## Local Perspective

*“LPI is a great, low-cost/high-impact countermeasure - especially when you focus on an entire area, instead of just individual intersections, to provide a consistent experience for pedestrians.” – Jed Niffenegger, City of Raleigh Traffic Engineer*

## Contextual Visual

AADT: Various (highest)  
Land Uses: Downtown, schools, commercial areas, and complex intersections  
Population: 469,100

N Blount St and Peace St

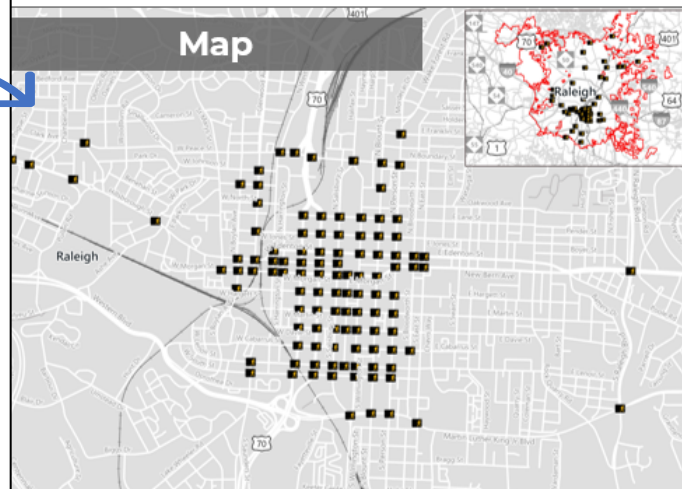


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## Scale of Implementation

### LPI Case Studies – Raleigh

#### Map



#### Background and Results

The initial implementation of LPI started in the early 2010s by adding it to signals along corridors in the downtown and per request. Beginning in 2020, it was widely implemented across the city, especially in areas where there was high pedestrian activity. The most recent count showed 145 signals had been improved with LPI across the city.

The City of Raleigh worked closely with the NCDOT Signal Design Section for deployment across the city. The City now focuses on implementing LPI by request, at areas of heavy pedestrian activity, and for providing consistency along a corridor.

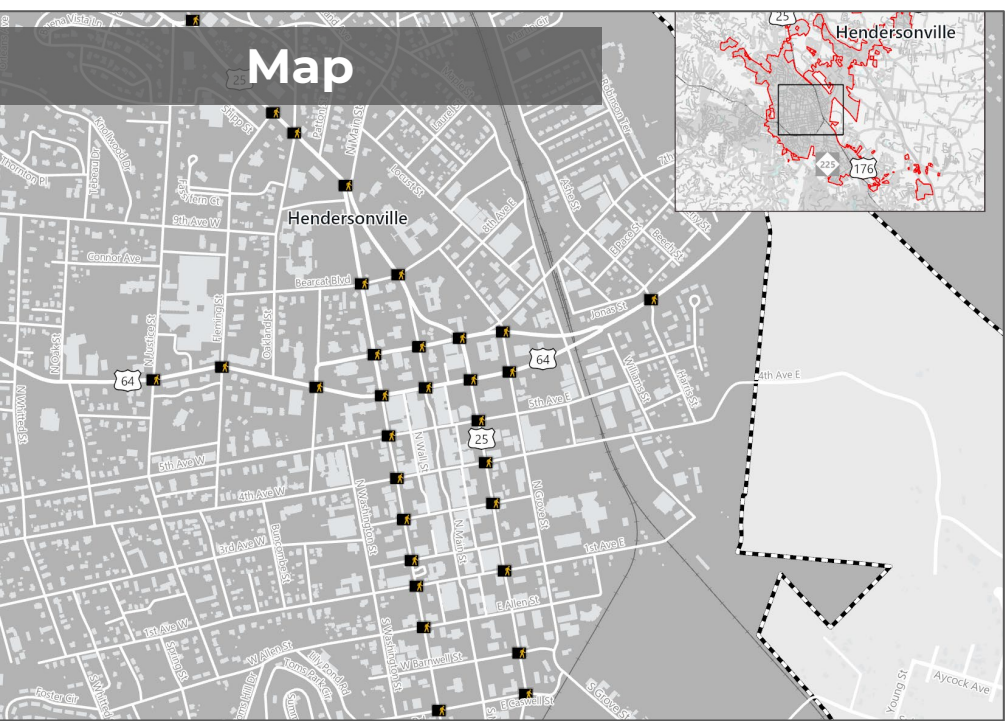
#### Design Considerations

|                      |   |
|----------------------|---|
| Interval Length      | 3 second minimum, 5-7 seconds at schools                                    |
| Pedestrian Actuation | Recall or rest-in-walk on mainline<br>Actuated by pushbutton on side street |
| Pedestrian Phases    | All phases  |
| Other Treatments     | “No Right on Red” signs, Accessible Pedestrian Signals (APS)                |

## Application of LPI



# LPI Case Studies - Hendersonville



## Background and Results

Hendersonville was the highest ranked city across the state for pedestrian fatalities and serious injuries (based on 2010-2019 crash data). LPI was recommended as a result of a pedestrian safety study completed in 2020. By the end of 2023, 38 signals had been improved with LPI.

NCDOT Division 14 selected the sites based on the previously completed safety study. Implementation began in the Spring of 2023 and was completed by the Fall of 2023.

## Design Considerations

|                      |  |
|----------------------|--|
| Interval Length      | 3 second minimum,<br>Followed formula from NCDOT |
| Pedestrian Actuation | Actuated by pushbutton                           |
| Pedestrian Phases    | All phases                                       |
| Other Treatments     | None   |

*“After finishing implementation across downtown Hendersonville, we are already looking to other corridors for future implementation.” – Steve Buchanan, Division 14 Traffic Engineer*

## City Context

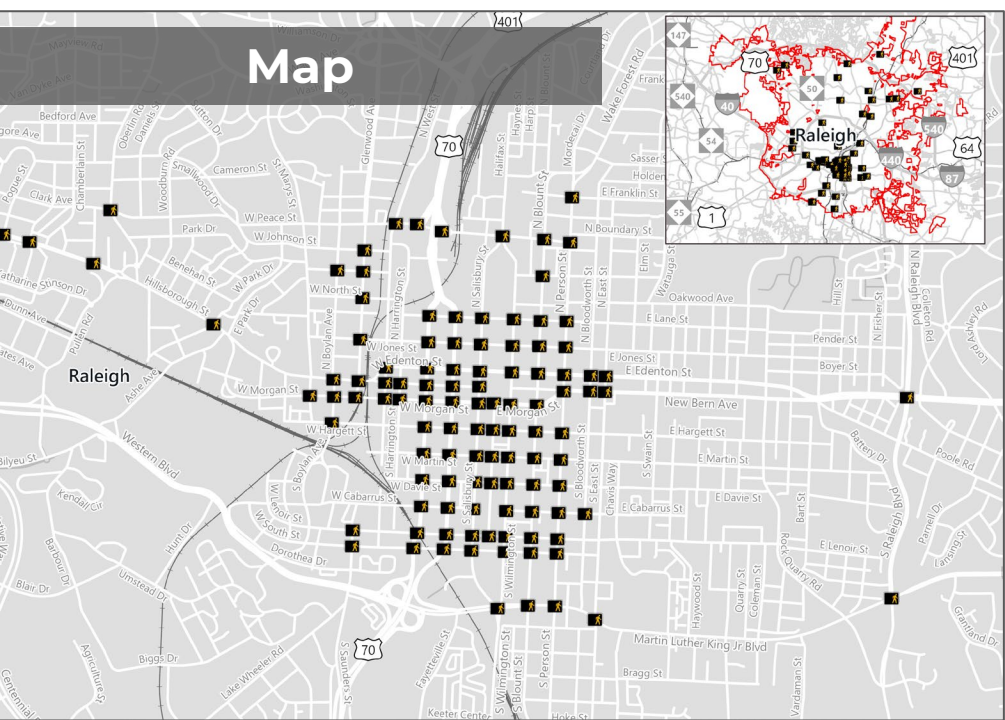
AADT: 13,000-15,000  
Land use: Downtown core  
Population: 15,100



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# LPI Case Studies – Raleigh



*“LPI is a great, low-cost/high-impact countermeasure - especially when you focus on an entire area, instead of just individual intersections, to provide a consistent experience for pedestrians.” – Jed Niffenegger, City of Raleigh Traffic Engineer*

## Contextual Visual

AADT: Various (highest)  
Land Uses: Downtown, schools, commercial areas, and complex intersections  
Population: 469,100



## Background and Results

The initial implementation of LPI started in the early 2010s by adding it to signals along corridors in the downtown and per request. Beginning in 2020, it was widely implemented across the city, especially in areas where there was high pedestrian activity. The most recent count showed 145 signals had been improved with LPI across the city.

The City of Raleigh worked closely with the NCDOT Signal Design Section for deployment across the city. The City now focuses on implementing LPI by request, at areas of heavy pedestrian activity, and for providing consistency along a corridor.

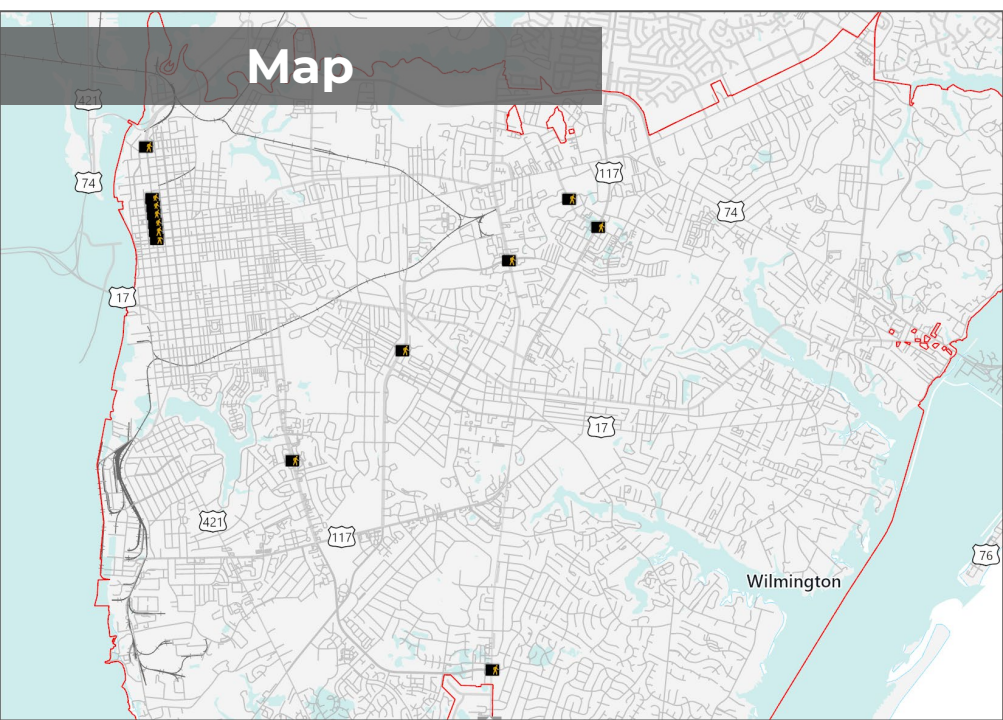
## Design Considerations

|                      |   |
|----------------------|---|
| Interval Length      | 3 second minimum, 5-7 seconds at schools                                    |
| Pedestrian Actuation | Recall or rest-in-walk on mainline<br>Actuated by pushbutton on side street |
| Pedestrian Phases    | All phases  |
| Other Treatments     | “No Right on Red” signs, Accessible Pedestrian Signals (APS)                |

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# LPI Case Studies – Wilmington



## Background and Results

LPI was historically implemented in Wilmington due to public request. After the first few installations were determined to be successful, the City started to take a more proactive approach to implementing LPI at key intersections and corridors. By the end of 2023, 13 signals had been improved with LPI across the City.

The City of Wilmington worked closely with NCDOT Division 3 for implementation across the City. Their current focus is on downtown and at trail and other high-volume pedestrian crossings. The City also considers input from the public and local leadership.

## Design Considerations

|                      |   |
|----------------------|---|
| Interval Length      | 3-7 seconds   |
| Pedestrian Actuation | Recall downtown<br>Actuated by pushbutton otherwise                   |
| Pedestrian Phases    | All phases  |
| Other Treatments     | “No Right on Red” signs, “Turning Vehicles Yield to Pedestrian” signs |

*“LPI is worth doing everywhere, even with short cycle pretimed signals in downtown areas.” – Denys Vielkanowitz, City of Wilmington Traffic Engineer*

## City Context

AADT: Various  
Land uses: Downtown, commercial, medical, university, and trails  
Population: 117,600



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