

# Active Transportation Plan Interchanges Case Study

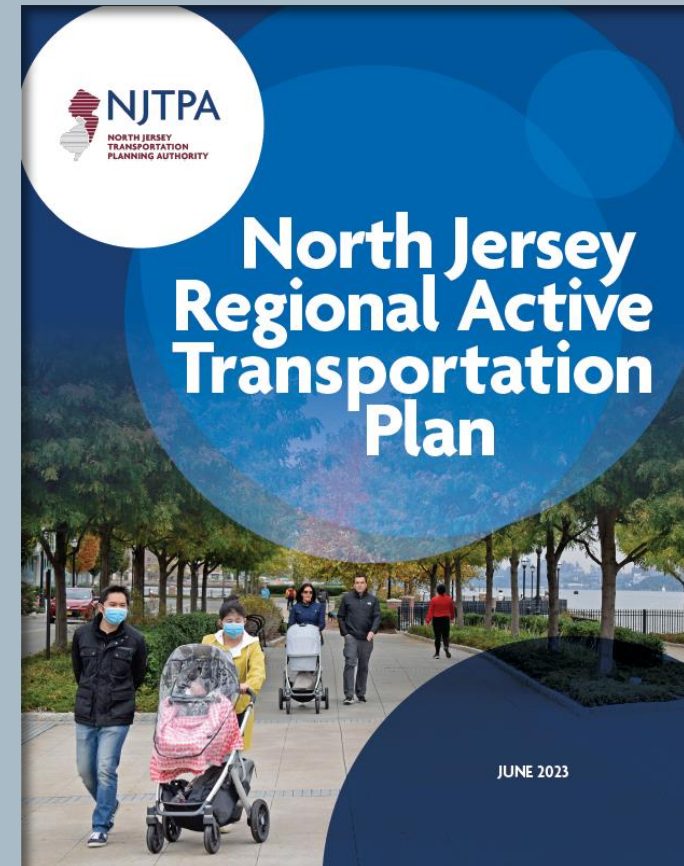
## Bicycle and Pedestrian Advisory Council Meeting

July 26, 2023



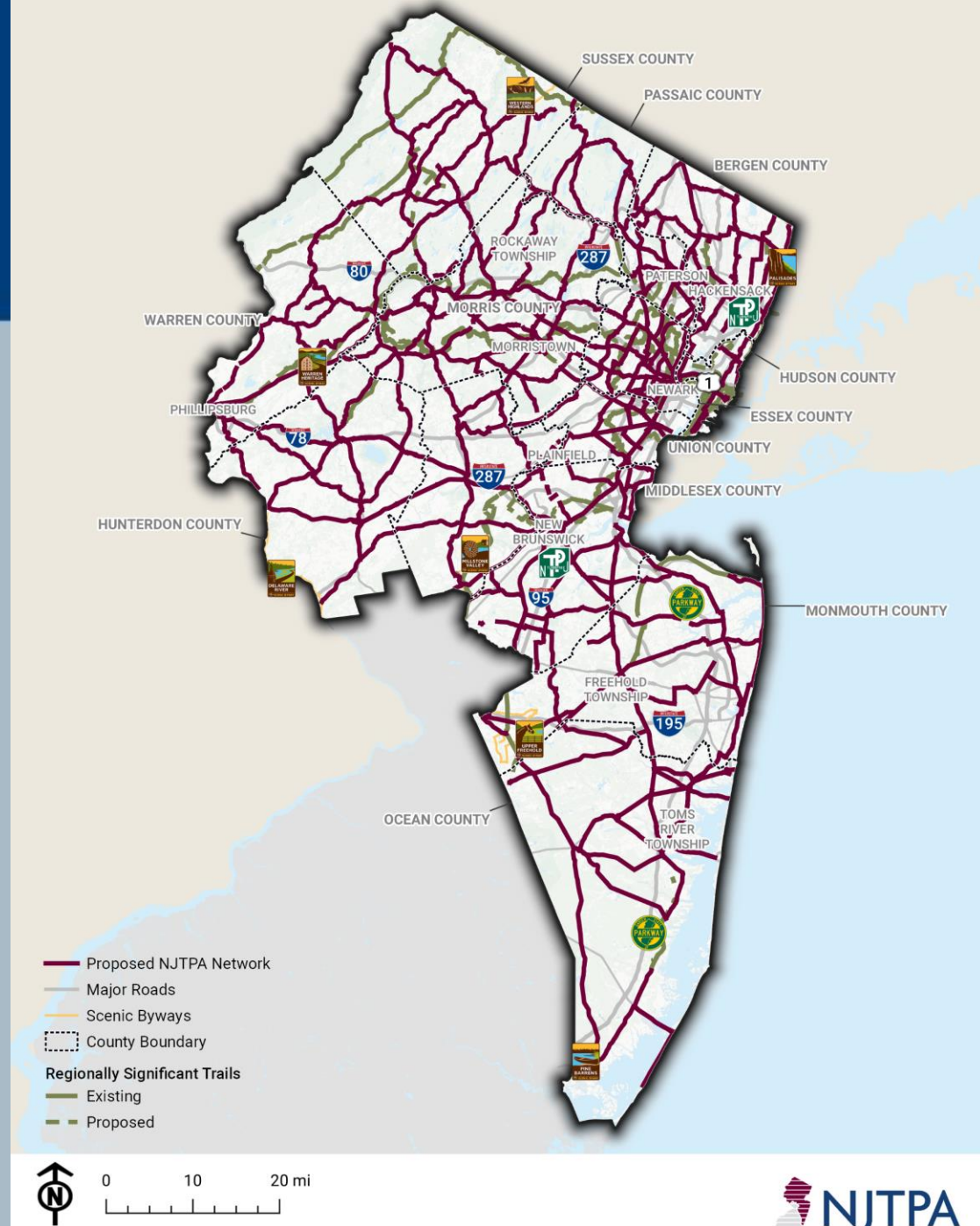
Keith Hamas, AICP

North Jersey Transportation Planning Authority



# Regional Active Transportation Network

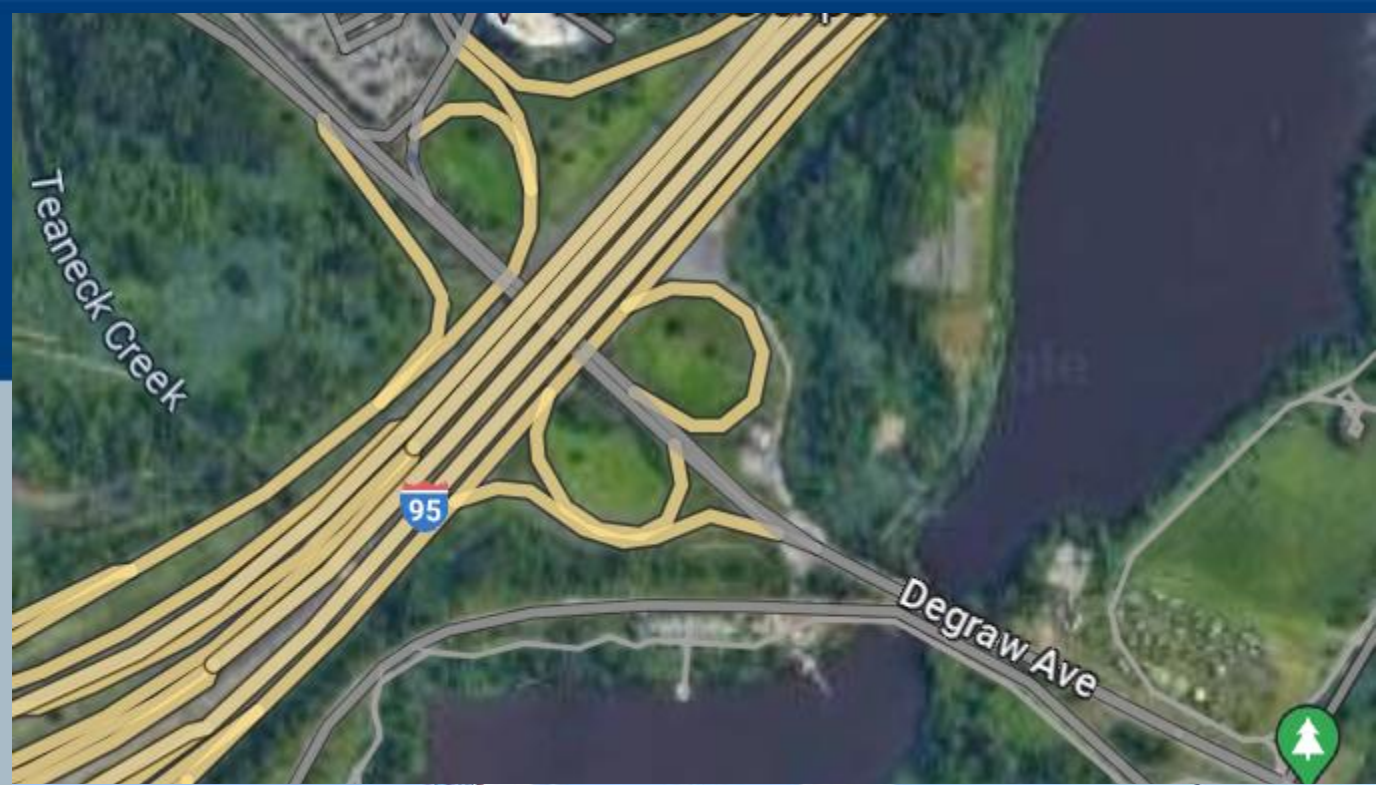
- **1,700 miles** of walking and biking improvements
- **5.6 million** people live within one mile of the network = **80%** of the region's population





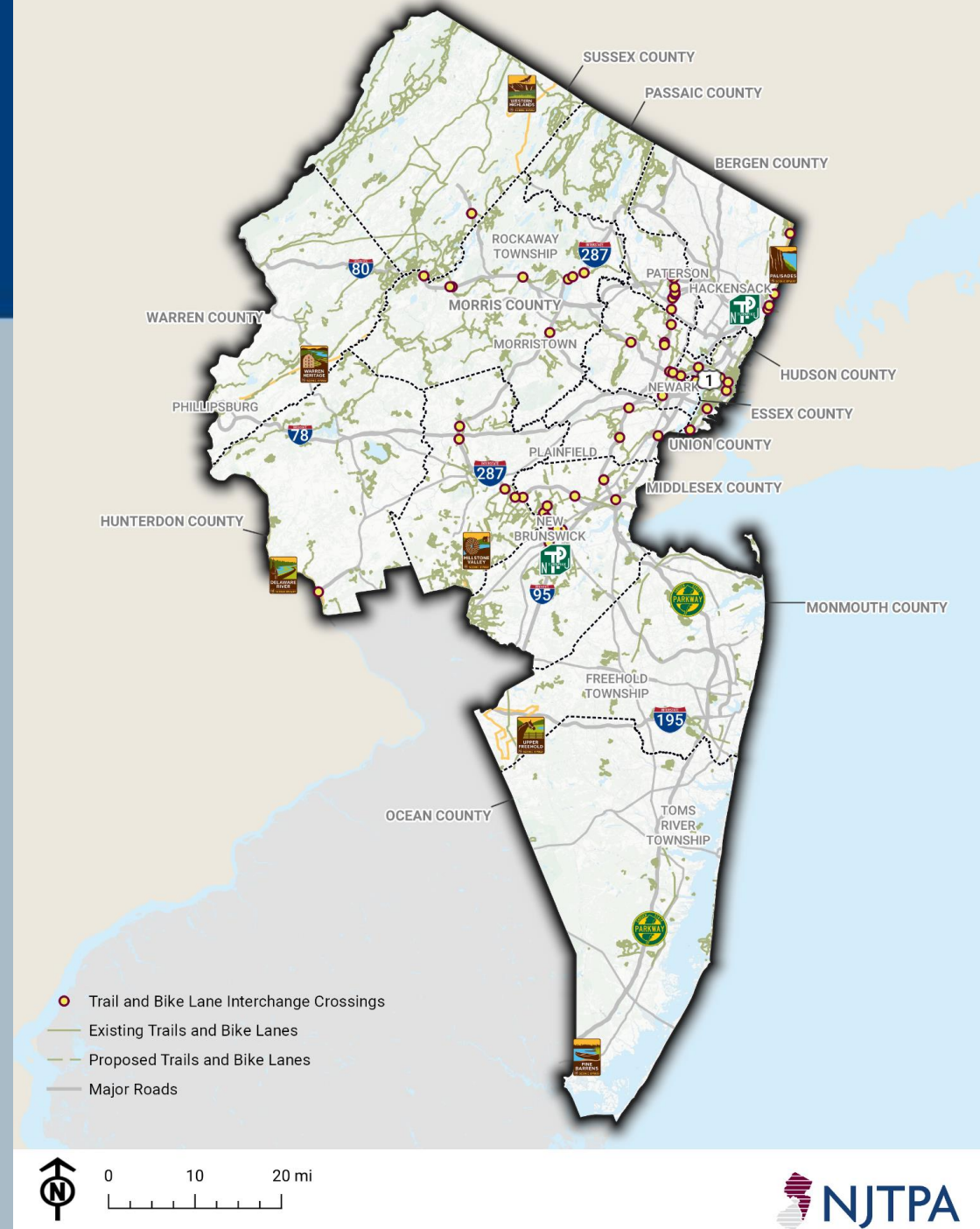
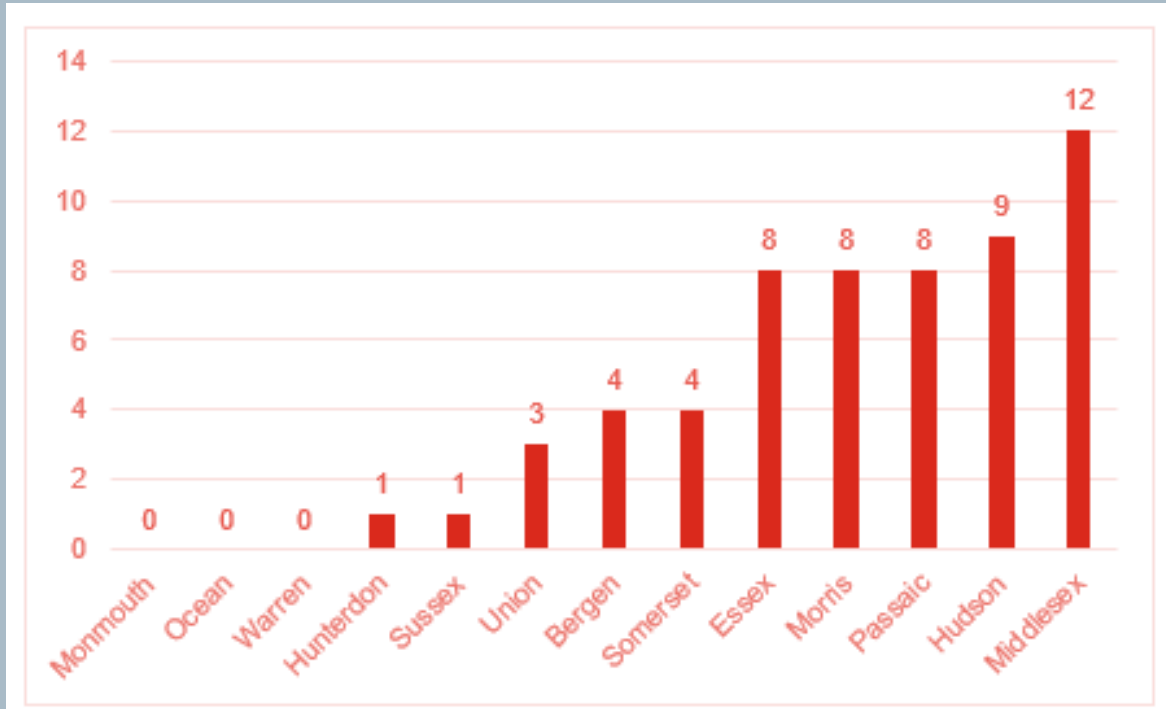
# Highway Interchange Analysis

- Share design guidance for navigating AT facilities through highway interchanges



# Highway Interchange Analysis

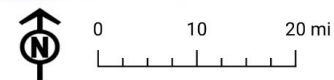
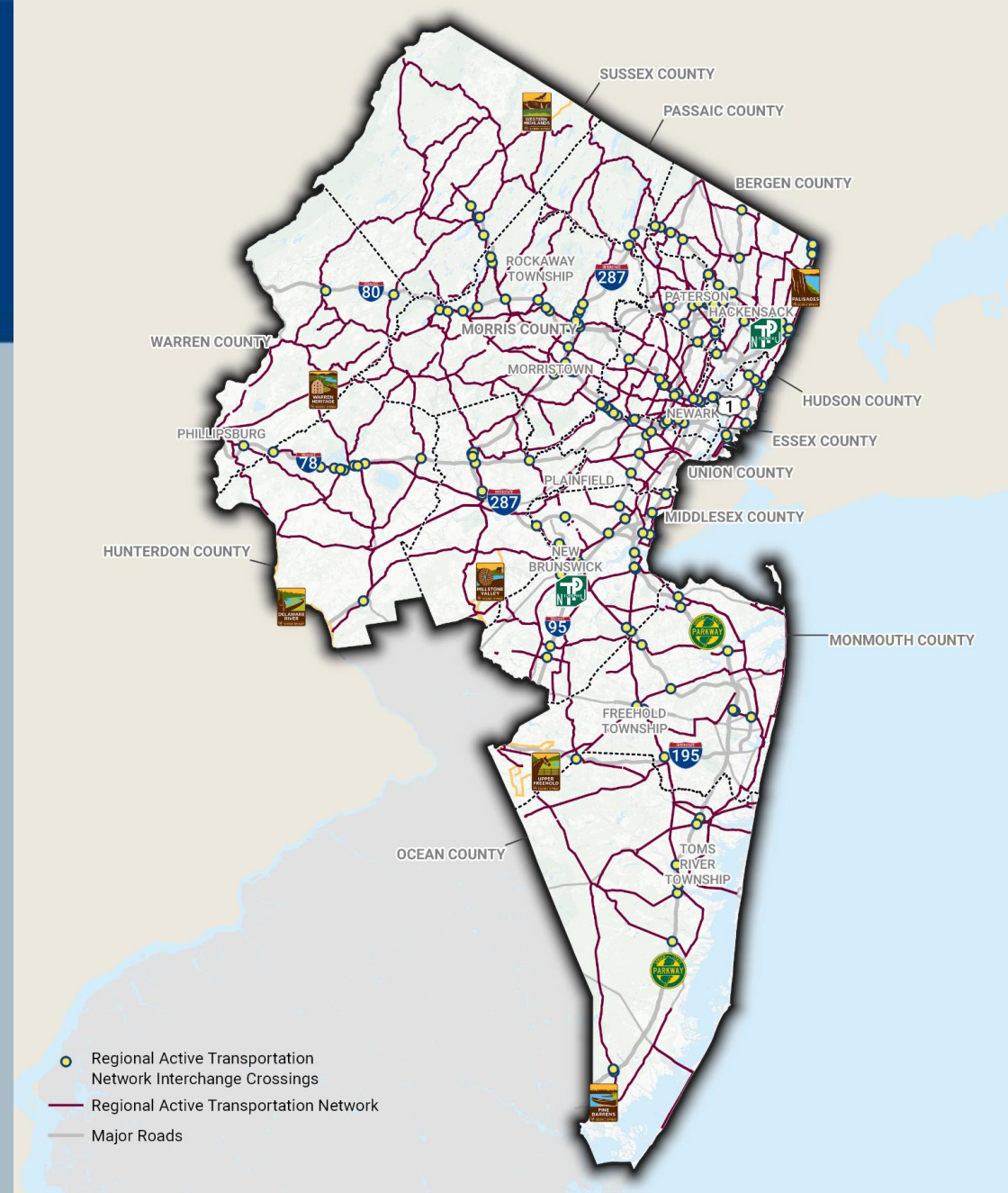
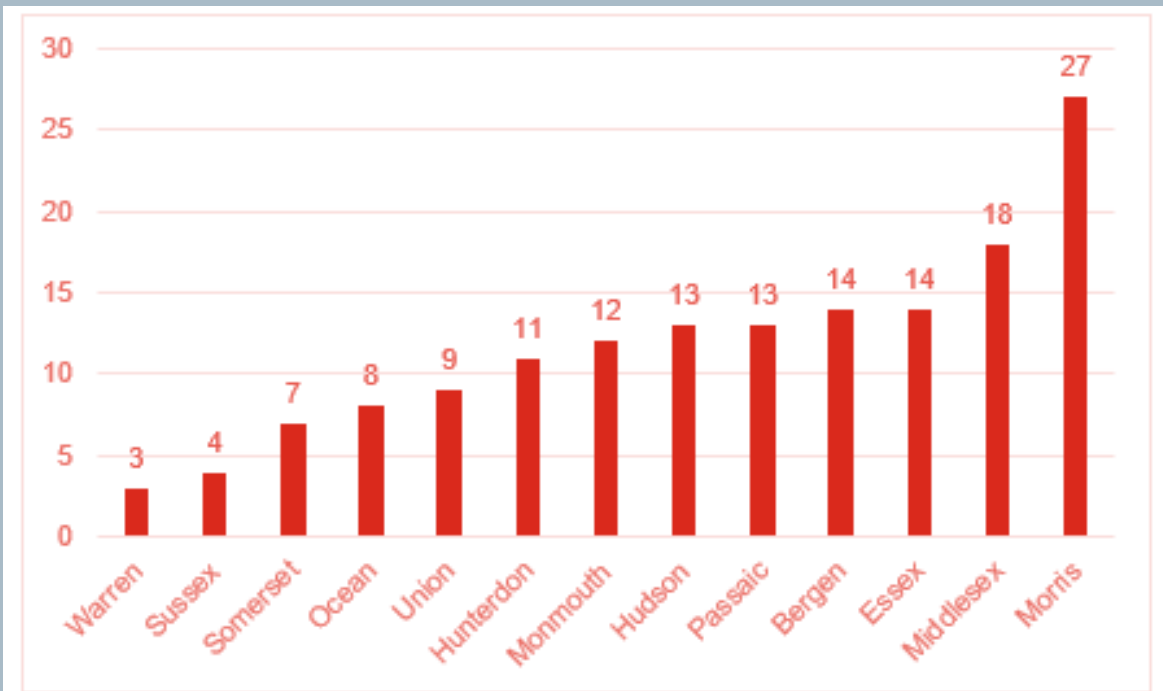
58 locations where existing bicycle facilities intersect with highway interchanges.





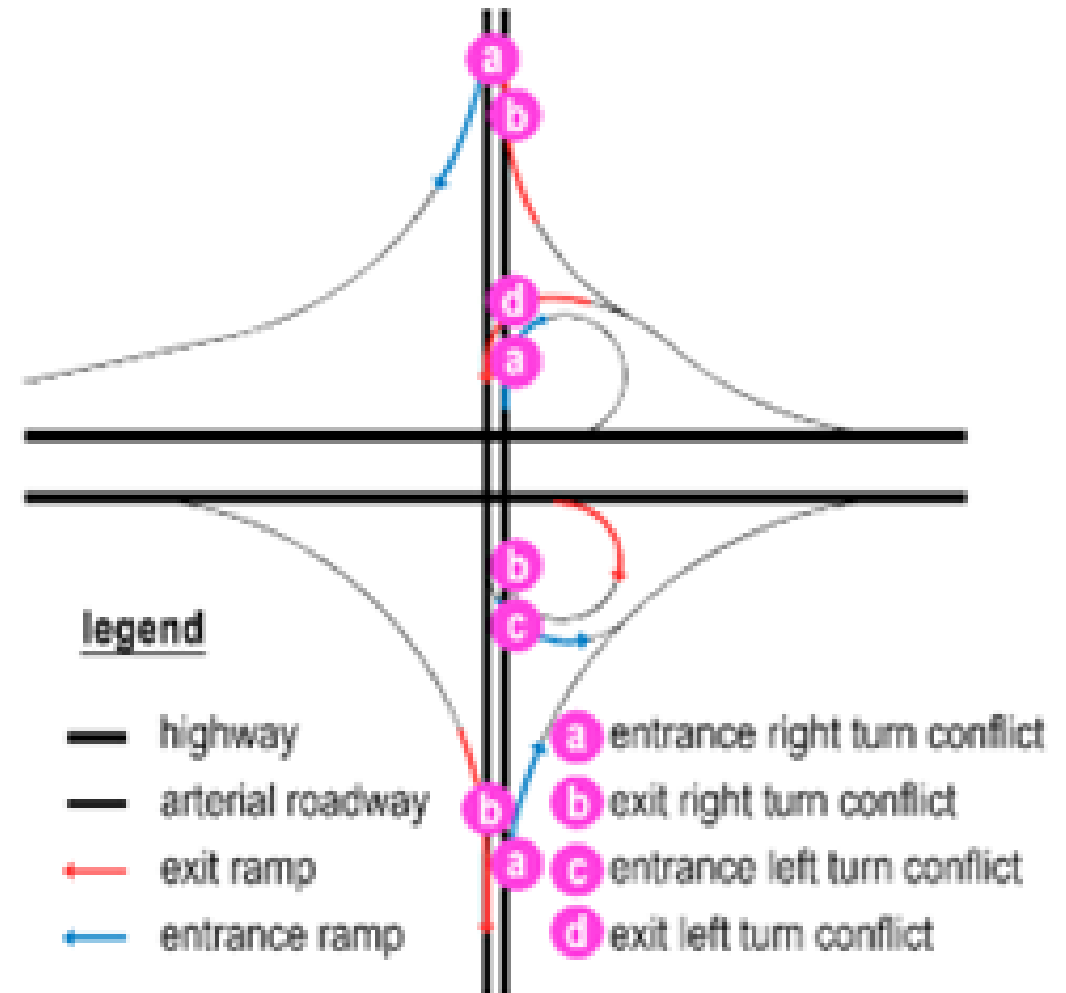
# Highway Interchange Analysis

187 locations where the regional active transportation network intersects with highway interchanges.



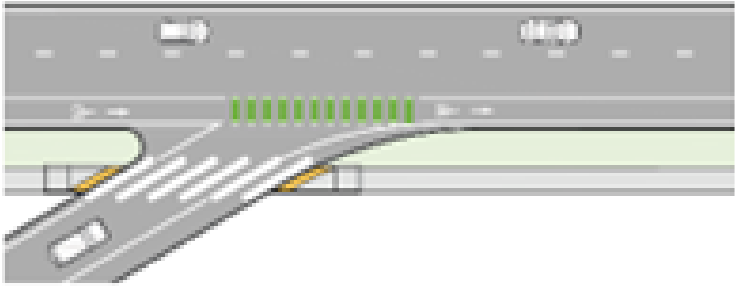
# High Level Safety Principles

- Safety principles include:
  - Provide clear bicycle routing
  - Manage vehicle speeds
  - Minimize conflicts with motor vehicles
  - Minimize severity of crashes at conflict points
  - Minimize conflict with pedestrians

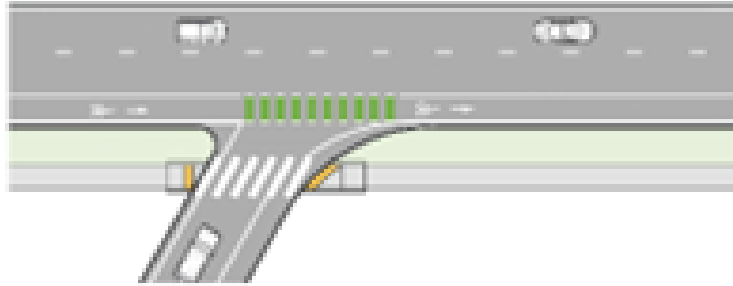


# Example Scenarios and Treatments

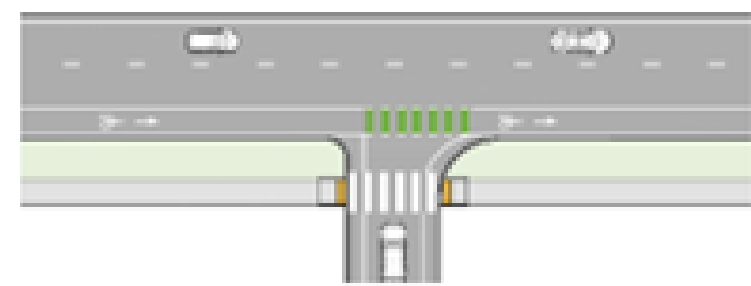
30°



60°



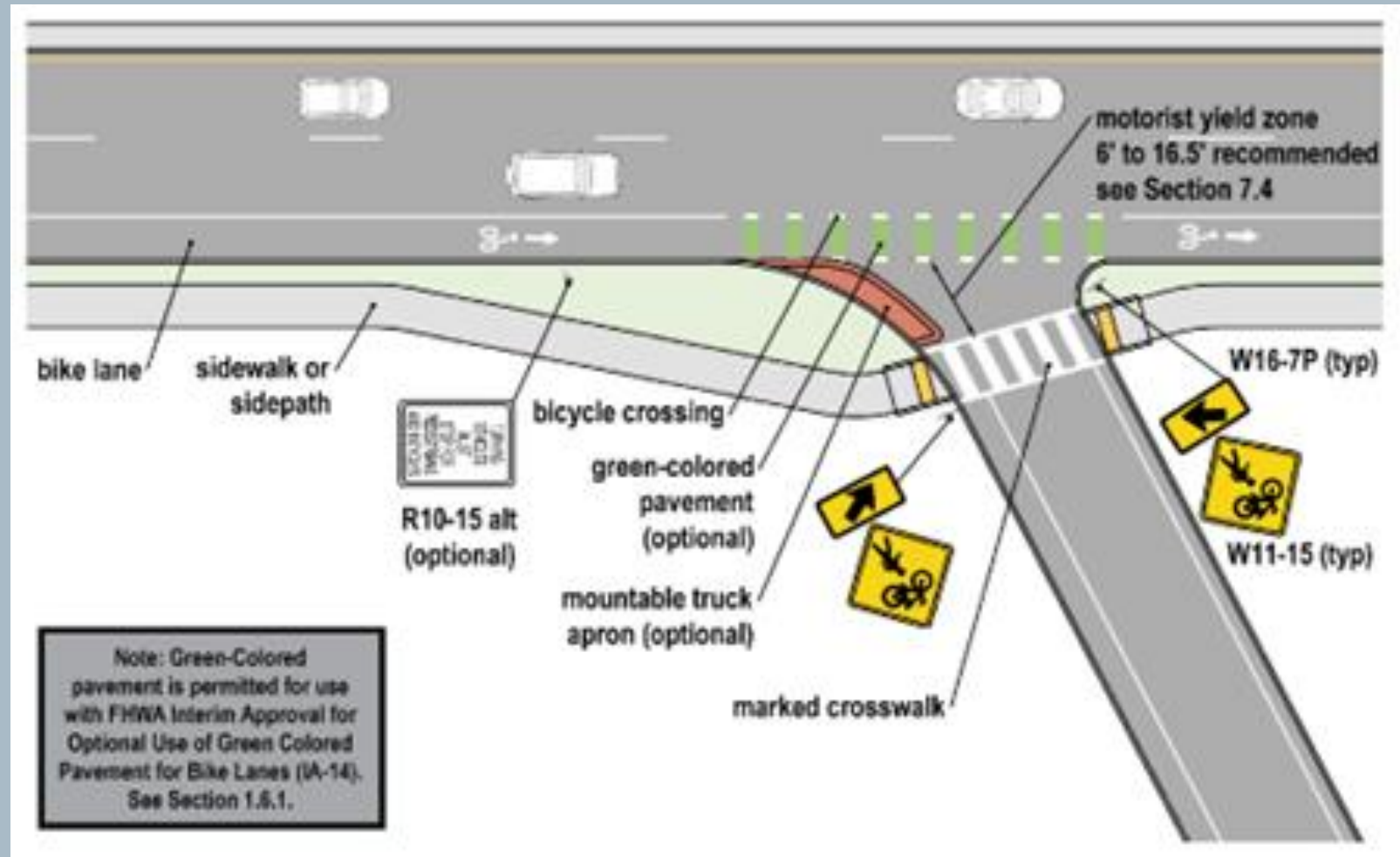
90°



- Ramp Skew
  - Manage vehicle speed on approach to ramp
  - Flatter angles encourage higher speeds
  - Angles  $> 75$  decrease speed and increase yielding

# Example Scenarios and Treatments

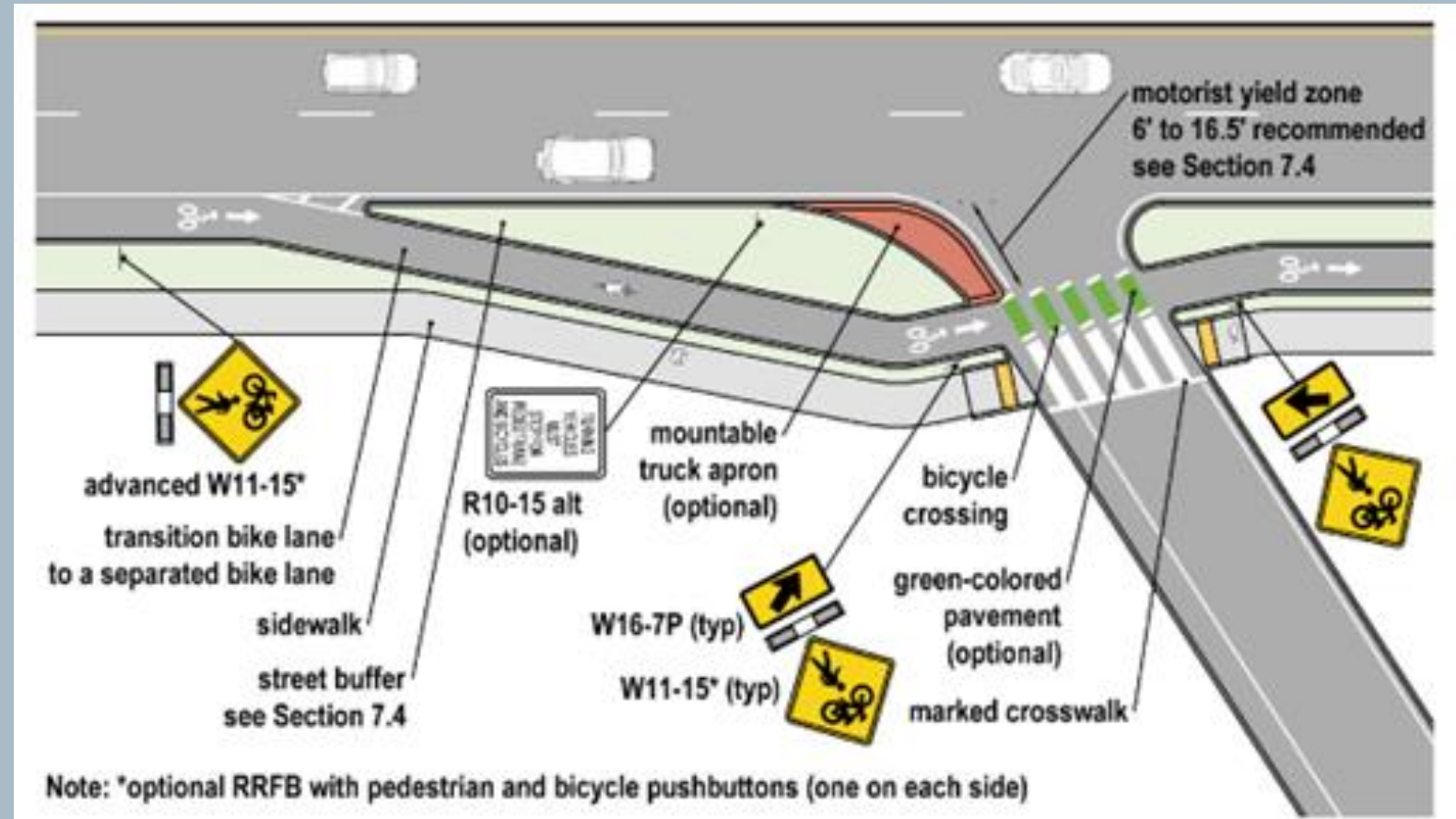
- Bicycle Crossings (low speed)
  - Mark conflict zones
  - Widen bike lane lines
  - Advance warning signs for motorists





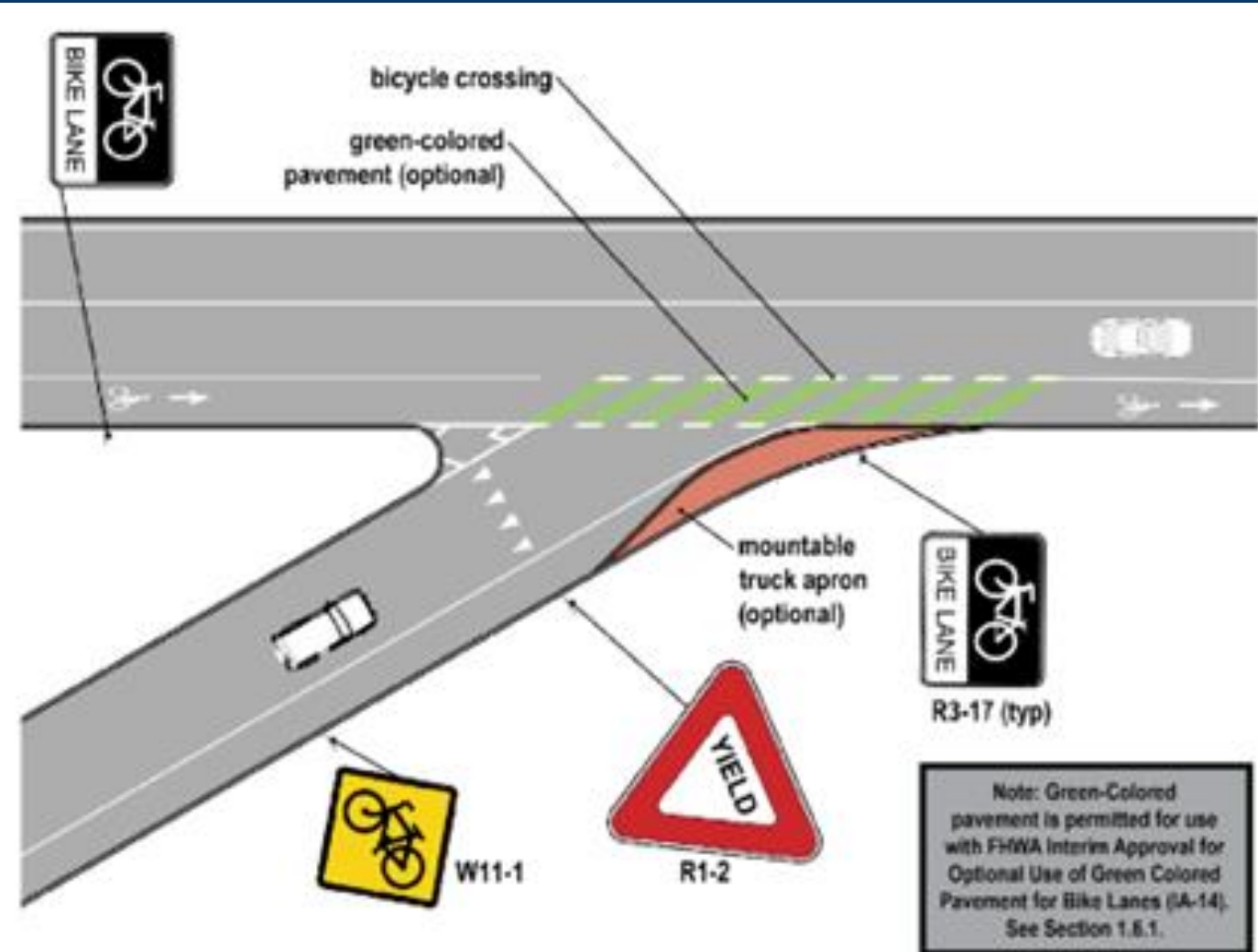
# Example Scenarios and Treatments

- Bicycle Crossings (high volume right turn entrance)
  - Transition bike lanes to separated bike lane
  - Crossing set back
  - Truck aprons



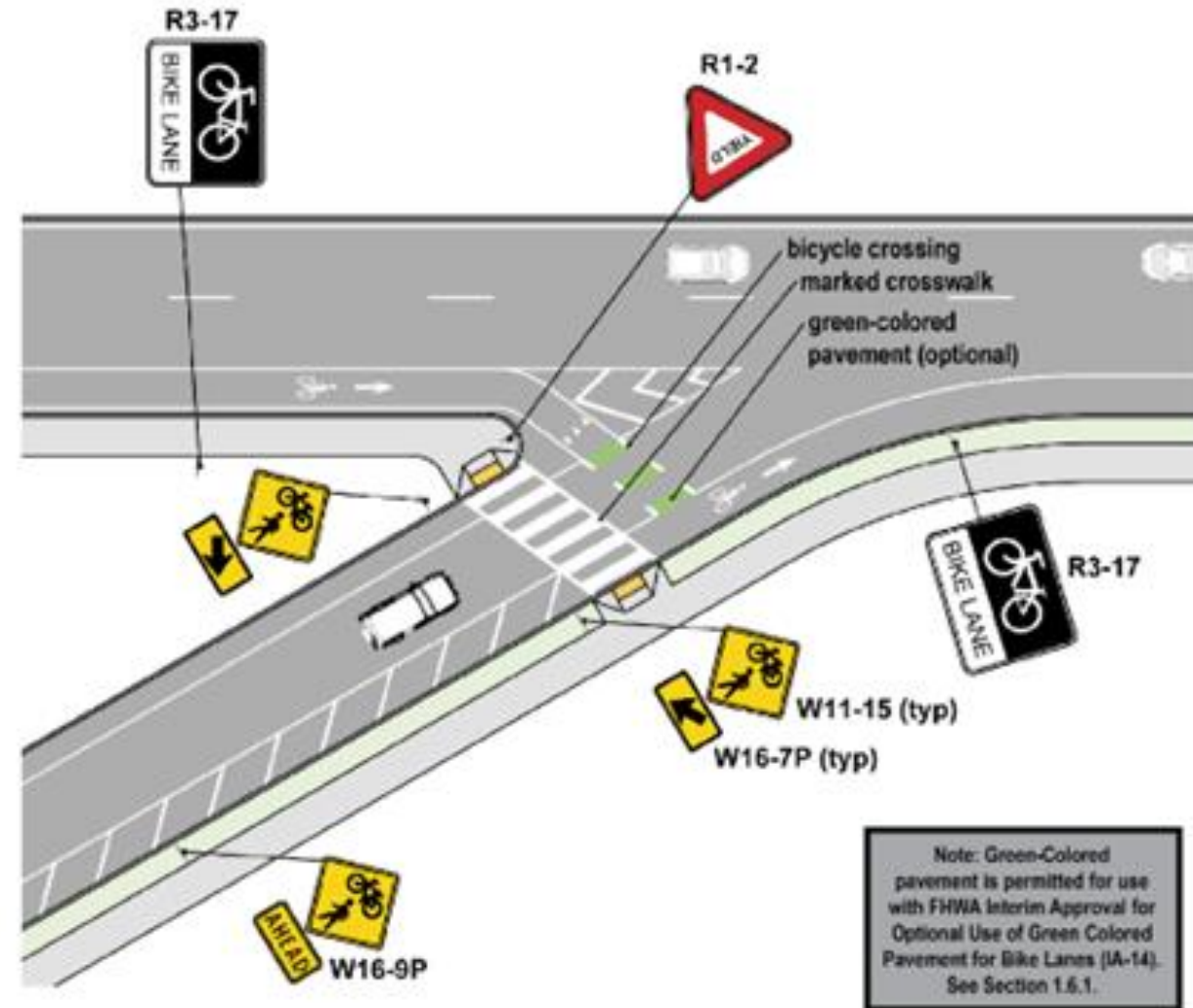
# Example Scenarios and Treatments

- Exit Ramps and Merging Areas
- Low Volume / Low Speed right turn exits
  - Painted bike lane crossing
  - Yield signs
  - Truck aprons



# Example Scenarios and Treatments

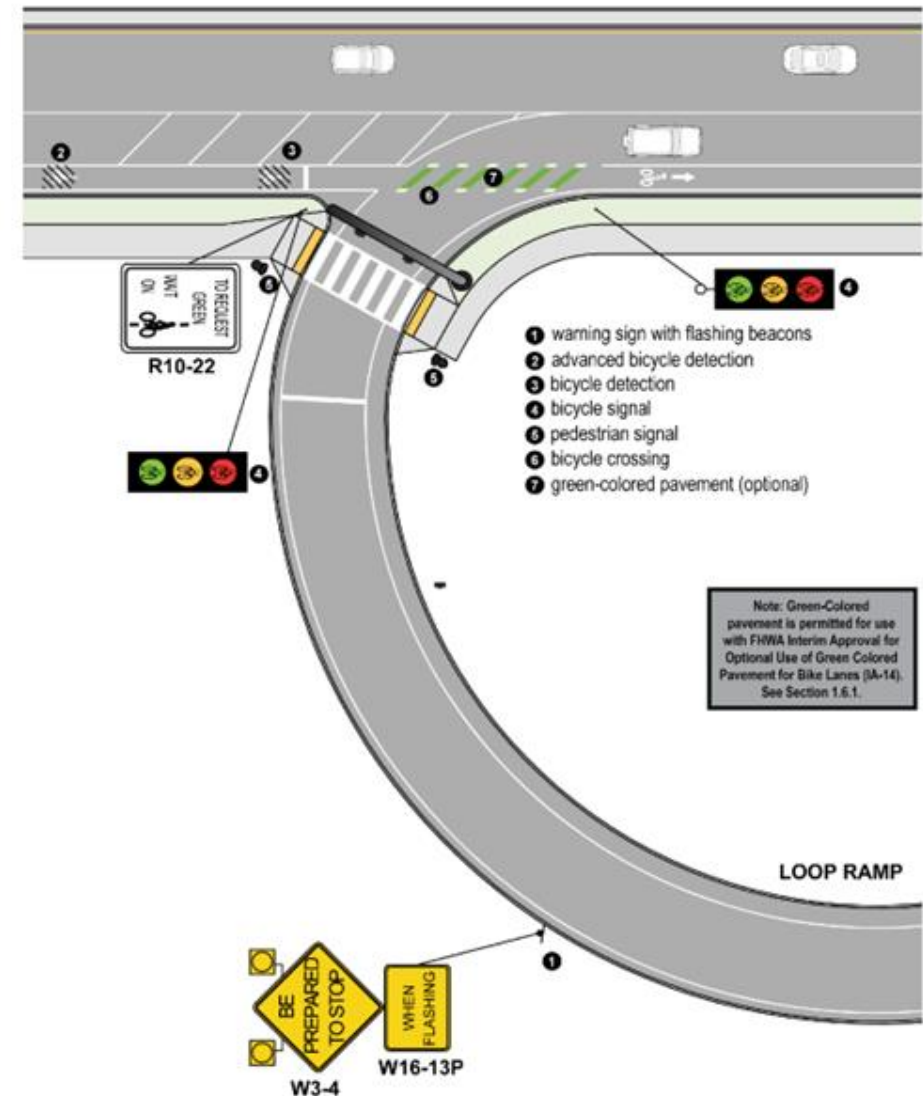
- Exit Ramps and Merging Areas
- High Volume / High Speed right turn exits
  - Perpendicular crossing
  - Warning signs on approach





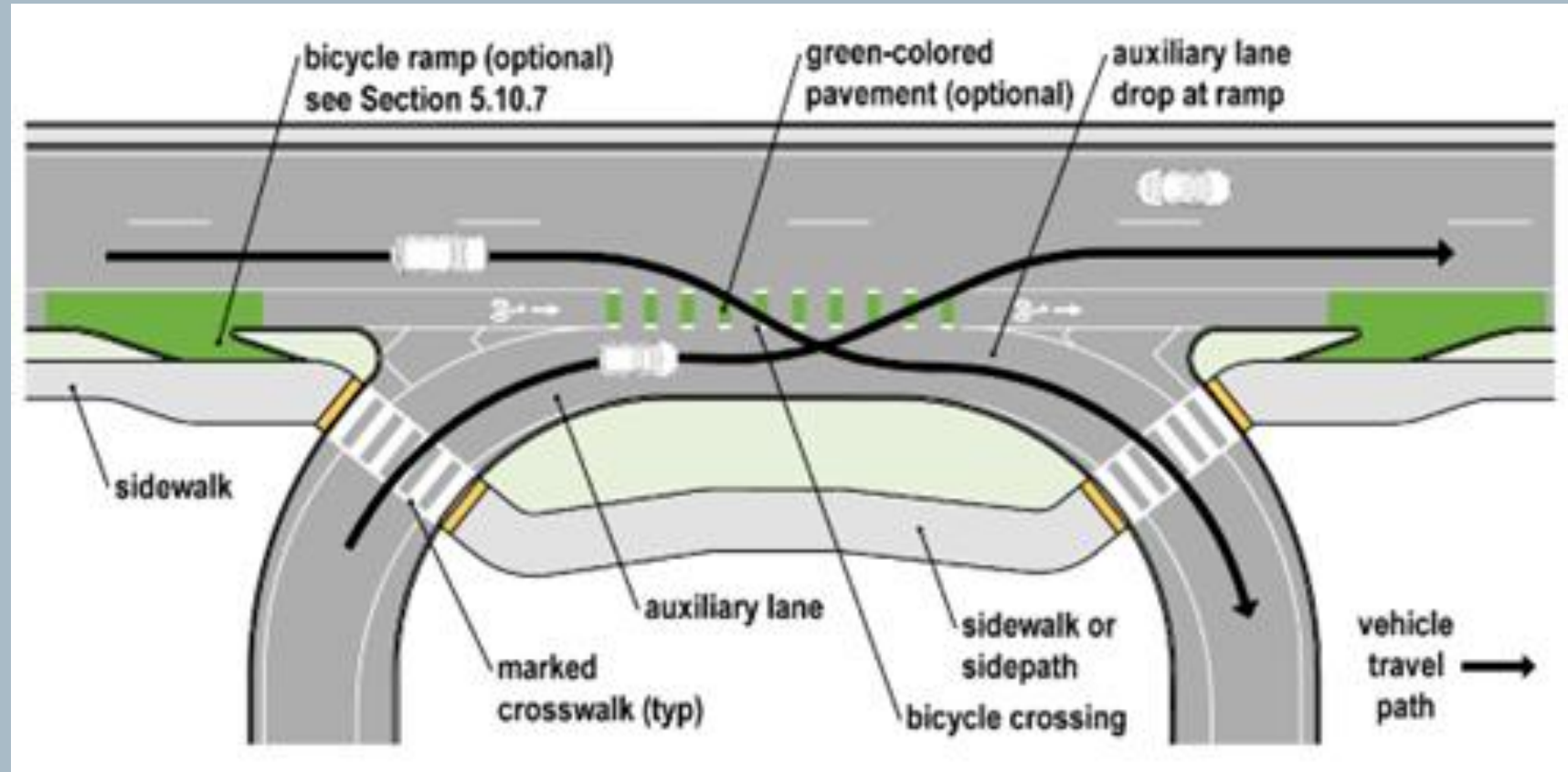
# Example Scenarios and Treatments

- Exit Ramps and Merging Areas
  - High Volume / High Speed right turn exits
  - \*Low yield rates
    - Add warning device or traffic signal



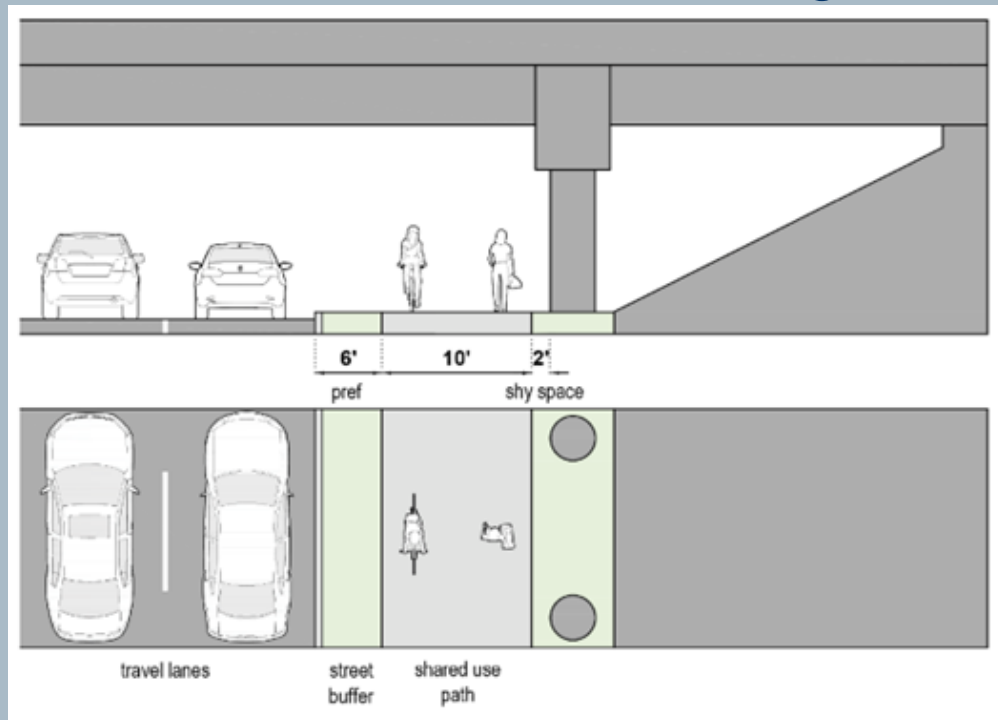
# Example Scenarios and Treatments

- Merging and Weaving Areas
  - Consider separate bike lane with enhanced crossing treatment

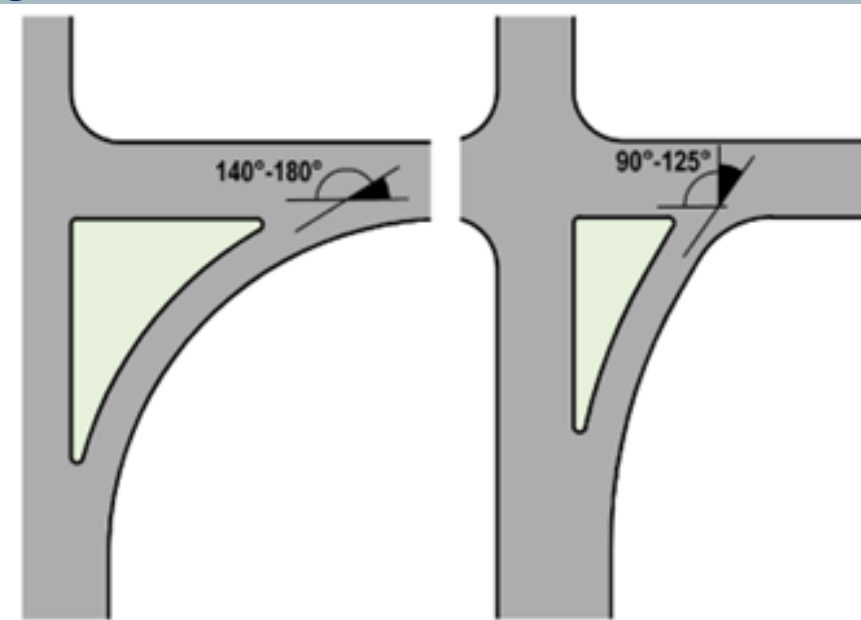
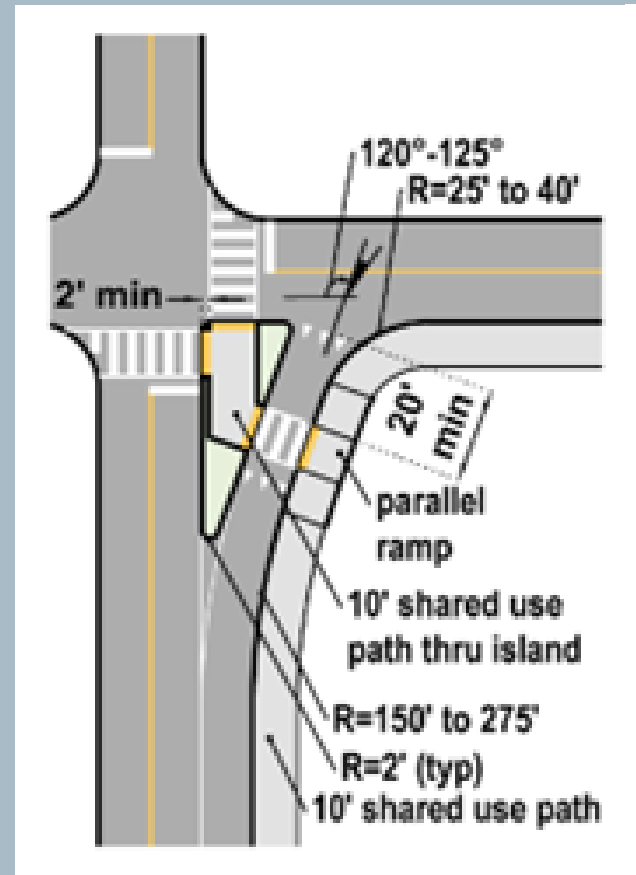


# Other Design Considerations

## Constrained AT Facilities at Bridge Piers



## Channelized Right Turn Lanes





# Thank You!



*Defining the Vision. Shaping the Future.*



# NJTPA

**NORTH JERSEY  
TRANSPORTATION  
PLANNING AUTHORITY**

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