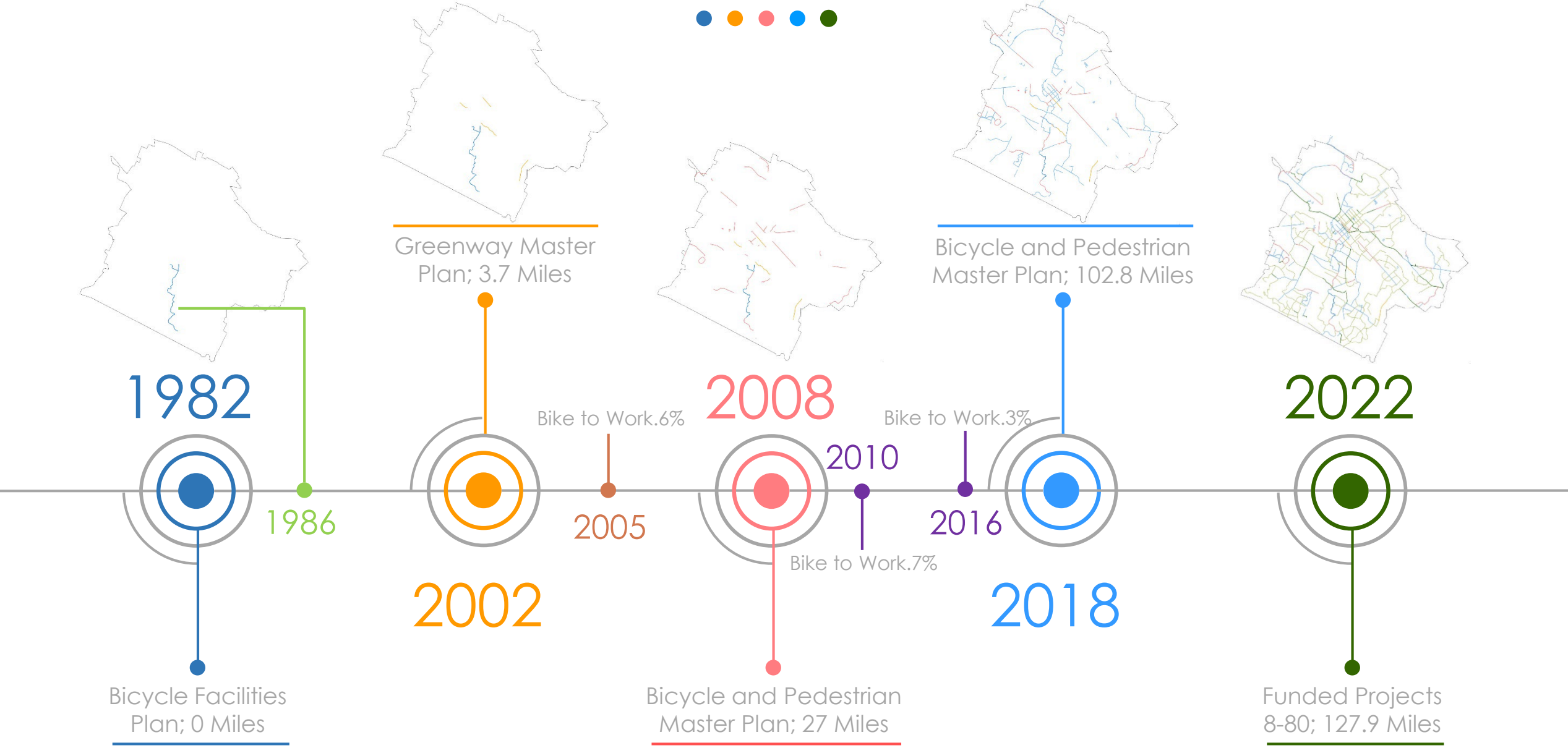


# BICYCLE TRANSPORTATION PLANNING TIMELINE



# BICYCLE TRANSPORTATION DESIGN



## BICYCLIST DESIGN USER PROFILES

### Interested but Concerned

**51%-56%** of the total population

Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separated bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.

### Somewhat Confident

**5-9%** of the total population

Generally prefer more separated facilities, but are comfortable riding in bicycle lanes or on paved shoulders if need be.

### Highly Confident

**4-7%** of the total population

Comfortable riding with traffic; will use roads without bike lanes.



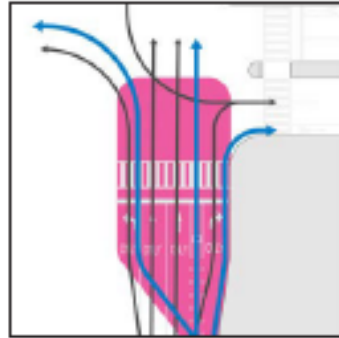
**LOW STRESS  
TOLERANCE**

**HIGH STRESS  
TOLERANCE**

# BICYCLE TRANSPORTATION DESIGN



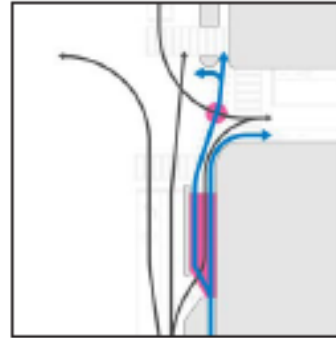
Exposure Level:  
High



## CONVENTIONAL BIKE LANES AND SHARED LANES

Bike lanes and shared lanes require bicyclists to share and negotiate space with motor vehicles as they move through intersections. Motorists have a large advantage in this negotiation as they are driving a vehicle with significantly more mass and are usually operating at a higher speed than bicyclists. This creates a stressful environment for bicyclists, particularly as the speed differential between bicyclists and motorists increases. For these reasons, it is preferable to provide separation through the intersection.

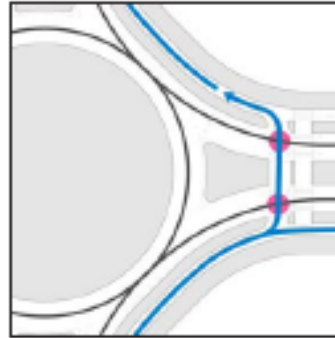
Exposure Level:  
High to Medium



## SEPARATED BIKE LANES WITH MIXING ZONES

One strategy that has been used in the U.S. at constrained intersections on streets with separated bike lanes is to reintroduce the bicyclist into motor vehicle travel lanes (and turn lanes) at intersections, removing the separation between the two modes of travel. This design is less preferable to providing a protected intersection for the same reasons as discussed under conventional bike lanes and shared lanes. Where provided, mixing zones should be designed to reduce motor vehicle speeds and minimize the area of exposure for bicyclists.

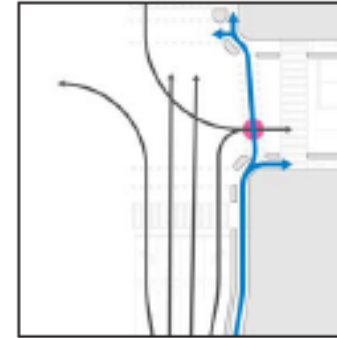
Exposure Level:  
Medium to Low



## SEPARATED BIKE LANES THROUGH ROUNDABOUTS

Separated bike lanes can be continued through roundabouts, with crossings that are similar to, and typically adjacent to, pedestrian crosswalks. Motorists approach the bicycle crossings at a perpendicular angle, maximizing visibility of approaching bicyclists. Bicyclists must travel a more circuitous route if turning left and must cross four separate motor vehicle path approaches. Yielding rates are higher at single-lane roundabouts.

Exposure Level:  
Low



## PROTECTED INTERSECTIONS

A protected intersection maintains the physical separation through the intersection, thereby eliminating the merging and weaving movements inherent in conventional bike lane and shared lane designs. This reduces the conflicts to a single location where turning traffic crosses the bike lane. This single conflict point can be eliminated by providing a separate signal phase for turning traffic.

