The explosive growth of bicycling as a means of transportation is evident throughout the United States of America. In large cities such as Chicago, Portland, San Francisco, and Washington, D.C. and smaller cities such as Boulder, Eugene, Madison, and Ann Arbor, the share of all trips taken by bicycles continues to rise. Bike lanes, bike paths, and bike share systems have increased access to bicycling and provided more connected networks for users. In fact, the number of bike commuters rose by 64% from 1990 to 2009 according to an analysis of bicycle trends by John Pucher and Ralph Buehler.

In response to the growing number of bicyclists, the City of Portland developed a study to categorize cyclists’ attitudes towards using cycling as a main mode of transportation. The study determined that of all users, 60% were interested but concerned. From this study, cities and transportation officials can see a large market for potential city cyclists who are resistant to cycling as a mode of transportation because of their perceptions relating to the safety, ease, and comfort of cycling in the city (for Portland this was 322,000 people). With the proper facilities to assuage these concerns of safety, cities can increase the number of daily cyclists and decrease the number of vehicles on the road.

One of the most popular forms of bicycle infrastructure is the use of bike lanes. The NACTO Urban Bikeway Design Guide defines bike lanes as a portion of the roadway that has been designat-
ed by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. There are several types of bike lanes. Conventional bike lanes are usually painted on the right side of the street next to motor vehicle lanes and allow users to pedal somewhat independently of traffic. Buffered bike lanes add even more space between motor vehicle lanes and bicyclists allowing for even safer travel as bicyclists have room to pass each other, avoid opening and closing car doors, and can travel farther from automobiles. There are several other types of bike lanes but they all essentially increase the predictability of a cyclist’s actions, increase user confidence and comfort, and improve the visibility of cyclists.

Signage, signals, and colored pavings are other popular ways to create safer and more usable networks for bicycling. Signs often advocate that a particular area is closed to vehicular traffic, that bicyclists may use the full lane, or otherwise notify motorists of a bicyclist’s right to the space. In the absence of a bike lane, one of the most helpful markings is a sharrow or shared lane marking. Sharrows are typically 40” wide and are placed in the middle of a lane to convey that the road is for shared use. This confirms for cyclists that they may use the road and contributes to a cyclist’s confidence. In the absence of a sharrow, motorists may neglect to share the road and bicyclists may travel too closely to cars, increasing the chances of an accident.

Despite the assurances that bike lanes and signage provides, safety is still one of the leading barriers to increased use. According to the National Highway Traffic Safety Administration (NHTSA) report on Traffic Safety Facts on Bicyclists and other cyclists with 2010 data, there are still significant bicycle-related injuries and fatalities. According to the report, 618 pedalcyclists were killed in motor vehicle traffic crashes, accounting for 2% of all motor vehicle traffic fatalities. 52,000 pedalcyclists were injured, again accounting for 2% of all motor vehicle traffic related injuries. Furthermore, the report explains that 72% of all pedalcyclists fatalities occurred in urban settings and 67% occurred at non-intersections.

Fatality rates decrease as cycling levels increase. Promoting cycling and providing bicycle-only facilities not only increase the number of cyclists by perception of improved safety, but more cyclists implicitly leads to lower levels of bicycle related fatalities as both cyclists and motorists become more familiar with the facilities. One of the best ways to increase cycling levels is through the construction of cycle tracks.

![The Ninth Avenue Cycle Track uses plastic bollards and parking spaces to separate bicyclists from traffic.](image)
According to the NACTO, a cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks create dedicated and protected spaces for users by separating cyclists from traffic which eliminates the risk and fear of accidents. Additionally it reduces confusion over the purpose of the facility and is much less intimidating for new or inexperienced riders. Cycle tracks can either be raised, one-way protected, or two-way cycle tracks. The construction of cycle tracks and other physically separated paths is a trend that is continuing in urban environments. Here are a few examples:

- The L Street Cycle Track in Washington, D.C. is a one mile stretch from New Hampshire Avenue to 12 Street NW. The project converted the left turn lane into a cycle track but allows for cars to line up at intersections to turn left. The track is separated from traffic with flexible posts except where cars can turn left. The entire track is painted green to increase visibility and includes bike boxes at intersections so bikes can line up at lights. There are future plans to add a cycle track on the westbound M street. There are several other cycle tracks in DC along 15th Street, 16th Street, and Pennsylvania Avenue.

- The Ninth Avenue Cycle Track used $2,000,000 in TE funding along with an additional $14.7 million in matching funds to install a 10’ cycle track between West 15th Street and West 23rd street. The project included new sidewalks, narrowing of the roadbed, landscaping, and pedestrian refuge islands in addition to the construction of the cycle track. The cycle track has an 8 foot buffer of raised concrete islands or parking spaces between traffic and the track. This cycle track is also located on the left side of a one-way street and includes sharrows, bollards, and painted roadway surfaces. In the three years following the installation of the track, total injuries decreased 58.2% compared to an equal period before.

Green painting and plastic bollards signify the L Street Cycle Track in Washington, D.C.

Cyclists on the Ninth Avenue Cycle Track in New York City.
• The 8 mile Indianapolis cultural trail connects the five cultural districts in downtown Indianapolis through a series of physically separated bicycle and pedestrian paths. This hub for the Indiana greenway system is remarkable as almost the entirety of the trail is raised and separated from the street. The bike paths are separated from automobile traffic by parking spots, raised curbs, rain gardens, and landscaping. The path itself is largely built at the sidewalk level providing a barrier between riders and traffic. A separate path for pedestrians is located even farther from the street adjacent to the bike path with signs clarifying which paths are for whom. Plants, shrubs, decorative art, and bollards separate these two modes. All of these efforts make riding safe and comfortable for all users.

• The Dearborn Cycle Track is a two-way, north-and southbound bicycle track along the left side of a one-way street. The City of Chicago employs several great techniques for enhancing the safety, and ease of use of this urban cycle track. These include: protected lanes, colored bike lane markings, and adjustments to intersection signal timing which include bike specific traffic signals for both directions of travel. For motorists, new left turn lanes and dedicated left turn arrows at west bound cross streets will allow for more efficient turns off Dearborn.

Dearborn Avenue Cycle Track in Chicago, Illinois.


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