International Collaboration

Strengthens Bicycle Planning, Design, and Safety

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

International exchanges, especially the binational relationship with the Netherlands, have influenced United States bicycle and pedestrian planning. By incorporating Dutch bikeway design features into United States design manuals, further improvements to design and safety can be realized. Effective planning and design of bicycle facility networks improves safety, reduces barriers for users, enhances access, and improves the overall transportation system.

The United States has also learned "Sustainable Safety" design principles from the Netherlands, which are based on the idea that infrastructure should be designed to accommodate human error and place a strong emphasis on cyclist and pedestrian safety.

Seven Principles of Bicycle Network Design

Safety
The frequency and severity of crashes are minimized and conflicts with motor vehicles are limited

Comfort
Conditions do not deter bicycling due to stress, anxiety, or concerns over safety

Connectivity
All destinations can be accessed using the bicycling network and there are no gaps or missing links

Directness
Bicycling distances and trip times are minimized

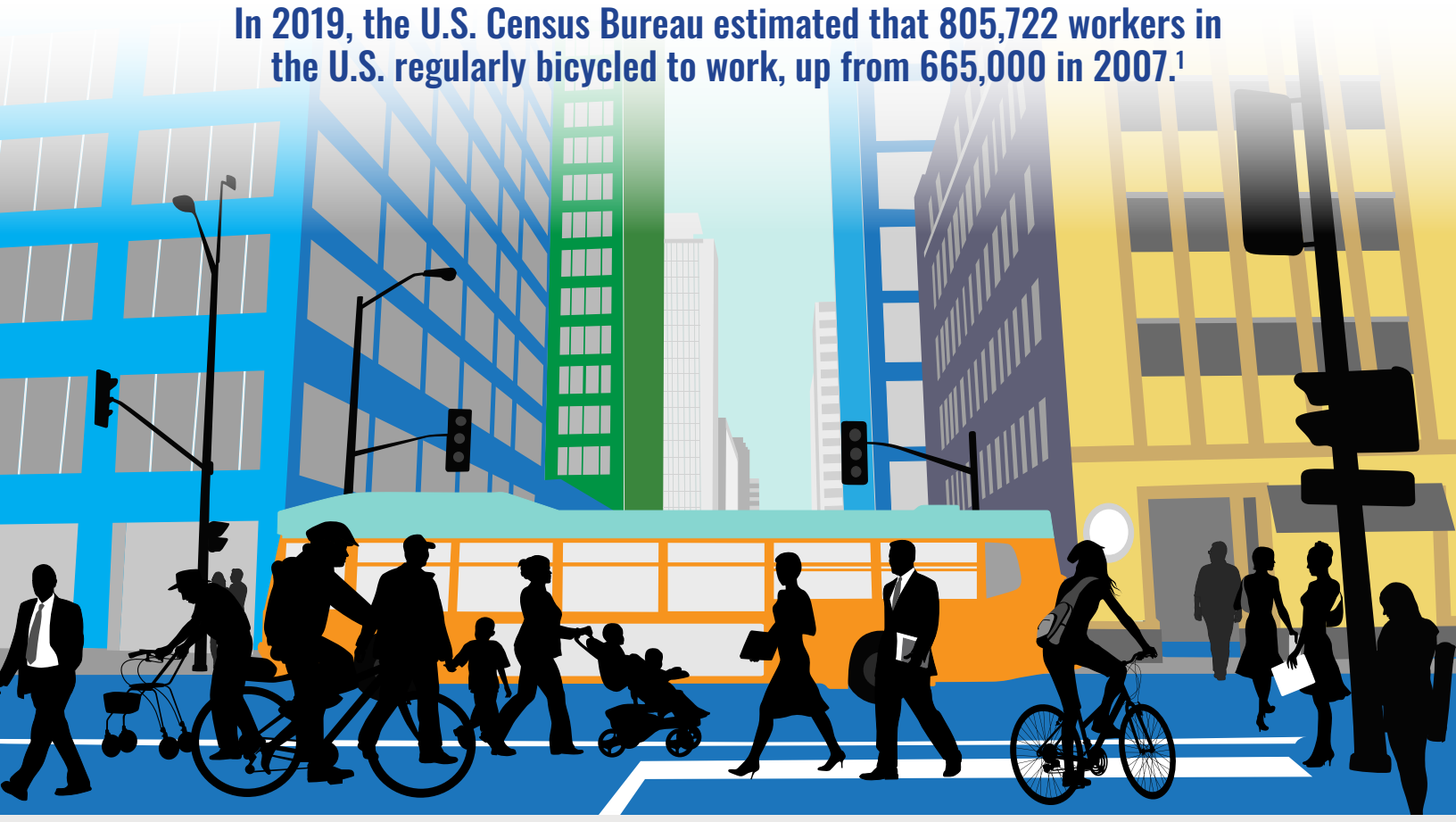
Cohesion
Distances between parallel and intersecting bike routes are minimized

Attractiveness
Routes direct bicyclists through lively areas and personal safety is prioritized

Unbroken Flow
Stops, such as long waits at traffic lights, are limited and street lighting is consistent

Source: Bikeway Selection Guide, FHWA-SA-18-077. U.S. Department of Transportation, Federal Highway Administration, 2019.

In 2019, the U.S. Census Bureau estimated that 805,722 workers in the U.S. regularly bicycled to work, up from 665,000 in 2007.[1]

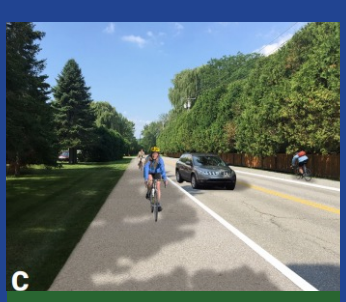


[1] United States Census Bureau, "National Bike Month: May 2021," https://www.census.gov/newsroom/stories/bike-month.html

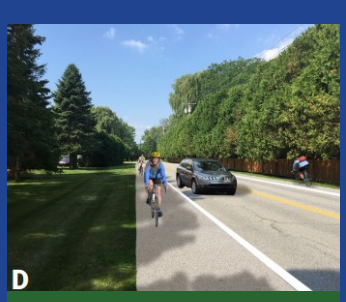
Illustration of Bikeway Selection in Practice on Rural Roads

A
2-LANE ROADWAY (BASE CONDITION)

B
2-LANE ROADWAY
(SHARED USE PATH OPTION)



C
2-LANE ROADWAY
(WIDE SHOULDER OPTION)



D
2-LANE ROADWAY
(NARROW SHOULDER OPTION)

Source: Bikeway Selection Guide, FHWA-SA-18-077. U.S. Department of Transportation, Federal Highway Administration, 2019.
https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf. Accessed April 2022.

Resources

The following Federal Highway Administration guides incorporate lessons-learned from the Global Benchmarking Program after working directly with Rijkswaterstaat (RWS), the executive arm of the Netherlands Ministry of Infrastructure and Environment:

- **The Dutch Approach to Bicycle Mobility: Retrofitting Street Design for Cycling**
  https://international.fhwa.dot.gov/pubs/pl18004/
- **Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts**
  https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/
- **Small Town and Rural Multimodal Networks**
  https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/
- **NHI Bicycle Facility Design web-based training**
  https://www.nhi.fhwa.dot.gov/course-search?sf=0&course_no=142080
- **Guidebook for Measuring Multimodal Network Connectivity**
  https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_connectivity