



Bike infrastructure – how did we get here?

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History of walking and biking

- Humans have been
 - Walking for transportation for 150,000 years
 - Using wheels for 4,500 years
 - Biking for 150 years
 - Driving for 100 years



U. S. DEPARTMENT OF COMMERCE
ROY D. CHAPIN, SECRETARY
BUREAU OF THE CENSUS
W. M. STEUART, Director

MORTALITY STATISTICS

1929



Founded in 1913

From 1924 to 1929 there was a continuous increase in the death rate from motor-vehicle accidents in the registration States of 1900, the rates ranging from 19.8 in 1924 to 27.4 in 1929; in the States of 1910, the rates ranged from 19.8 to 28.8 and in the States of 1920, from 17.5 to 26.5. The District of Columbia is always included in the groups "States of 1900, 1910, or 1920."

Today's rate:
~12 fatalities / 100,000 people

1920's: Social Engineering

- Jaywalking first appears in the dictionary in 1924





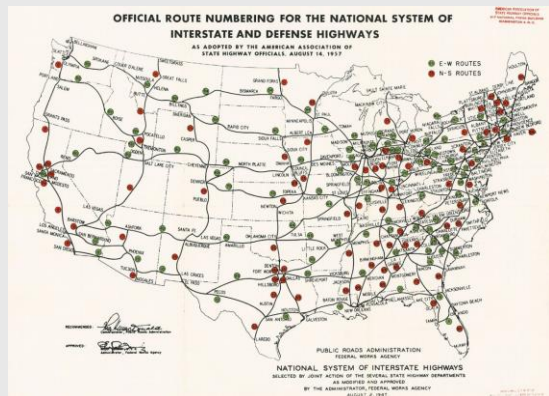
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Interstates and fast cars

- 26,000 mile interstate system built in 15 years (1956-1971)
- 1908-1927 Ford Model T – 20 horsepower, top speed 45 mph
- 1964 Pontiac GTO – 348 hp, top speed 112 mph
- 10 mph over posted speed limits
 - 13 percent of major arterial traffic
 - 15 percent of minor arterial traffic



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Types of Bicyclists



Interested but Concerned



Somewhat Confident



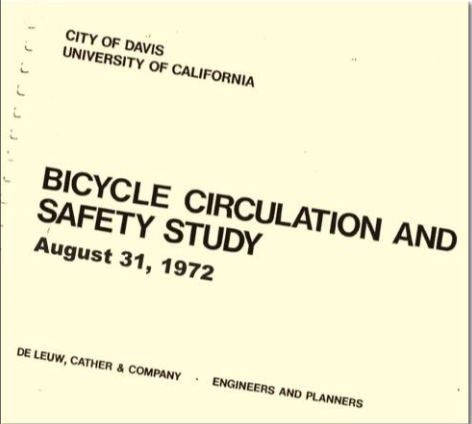
Highly Confident



Davis, CA - 1967



1972 DeLeuw Cather Research



- Findings from Davis, CA consistent with current research on bicyclists’ preferences and safety:
 - Bicyclists & motorists prefer separation
 - Bike lanes safer than shared lanes
 - Contra-flow bicycling increased crashes
 - Motorists would sometimes park or stop in unprotected bike lanes

1974 AASHTO Guide

- Included guidance such as:
 - Don’t drop a bike lane at an intersection
 - Mark bicycle crossings
 - Two-stage turn boxes
 - Protected intersection designs



GUIDE FOR BICYCLE ROUTES



Prepared by the
Standing Committee on Engineering Operations
American Association of State Highway and Transportation Officials

Innovative intersection designs

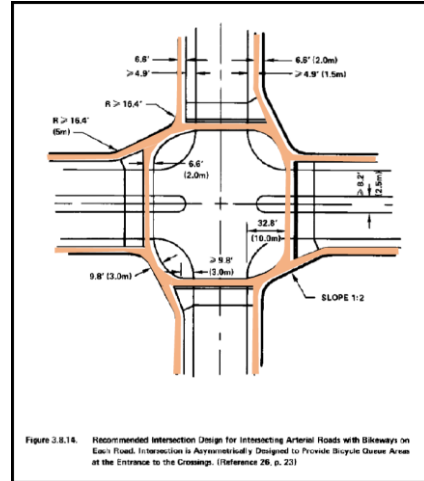
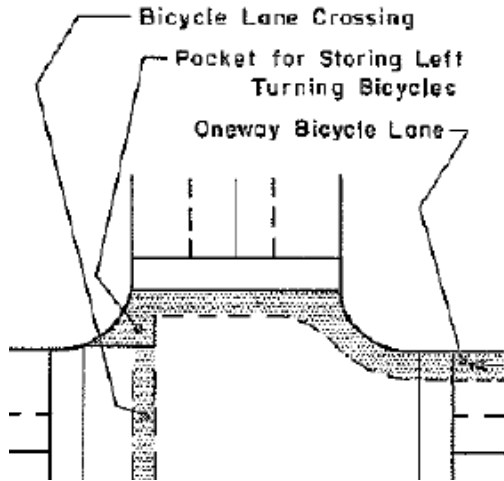


Figure 2.8.14. Recommended Intersection Design for Intersecting Arterial Roads with Bikeways on Each Side. Intersection is Recommendedly Designed to Provide Bicycle Queue Area at the Entrance to the Crossing. (Reference 26, p. 23)

Challenges with separation

- Separated facilities need to be more than glorified sidewalks
- 1970s separated facilities had
 - Pedestrians
 - Debris
 - Signs & poles
 - Poor sight lines



Villanova Drive, Davis CA
Widened Sidewalk/Sidepath

Milwaukee Ave, Chicago, IL
Source: Chicago Tribune



“Vehicular cycling...is faster and more enjoyable, so that the plain joy of cycling overrides the annoyance of even heavy traffic.”

– John Forester

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1981 – AASHTO responds

“Bicycle Lanes should always be placed between the parking lane and the motor vehicle lanes.

Bicycle lanes between the curb and the parking lane create hazards for bicyclists from opening car doors and poor visibility at intersections and driveways, and they prohibit bicyclists from making left turns; therefore this placement should **never** be considered.” [emphasis added]



West 32nd Ave, Denver, CO
Source: Denver Post

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1981 – introducing the “wide outside lane”



Now what?

- MnDOT State Bicycle System Plan found drivers, bicyclists and pedestrians all prefer separation.
- Walk! Bike! Fun! teaches children safety skills for the system we have
- 2019 MnDOT Bicycle Facility Manual helps us design a better system