

Dutch Cycling: For a Cycle-Friendly World

The Dutch Cycling Embassy is a vast network of public and private organizations from the Netherlands who wish to share their knowledge and expertise to help cities experience the many advantages of cycling.





- **Experience** the Dutch cycling culture first-hand
- Think about best possible solutions and achievable results
- Act by applying these solutions to your local context
- Learn more about effective policies and best practices



BEREIKBAAR











































MultiSensors































ARCADIS



















































november:city

VENTRACO



(1)

Horizons



FOLKERSMA



oendersloot

































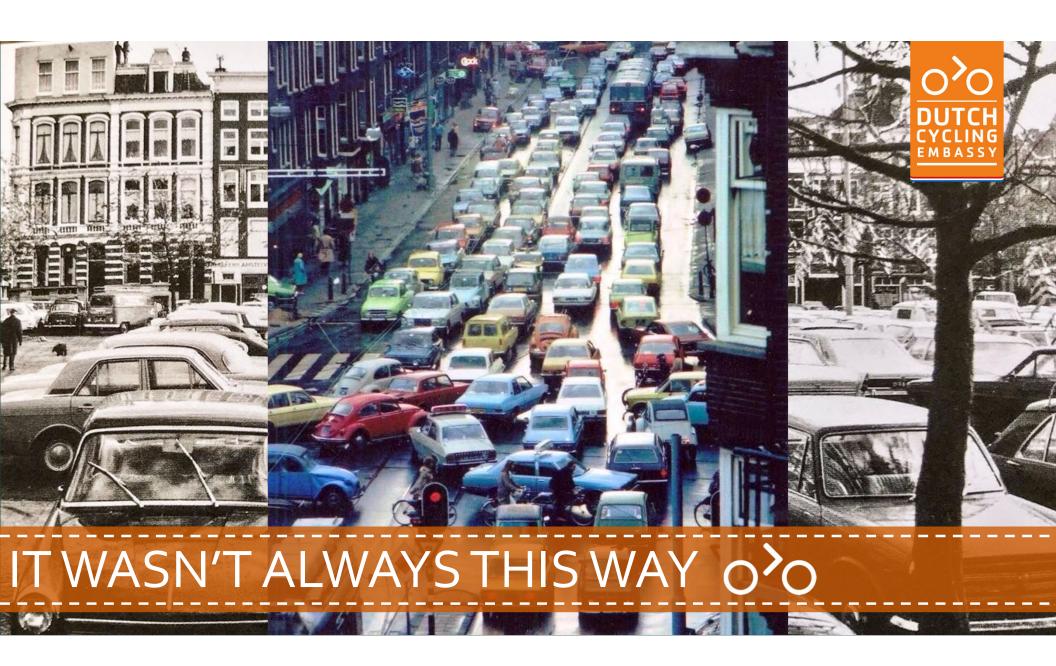
















Crisis as a Turning Point



- o In the Netherlands, a pair of converging crises in the 1970s created a systematic approach to safer, more sustainable, equitable, and efficient street design
- Ohild Murder") formed in reaction to a road safety crisis that was killing 3,000 people per year, including 450 children
- o'o For six weeks in 1973, the OPEC oil embargo resulted in an abrupt gasoline shortage and 'Car Free Sundays' policy, doubling the sales of bicycles

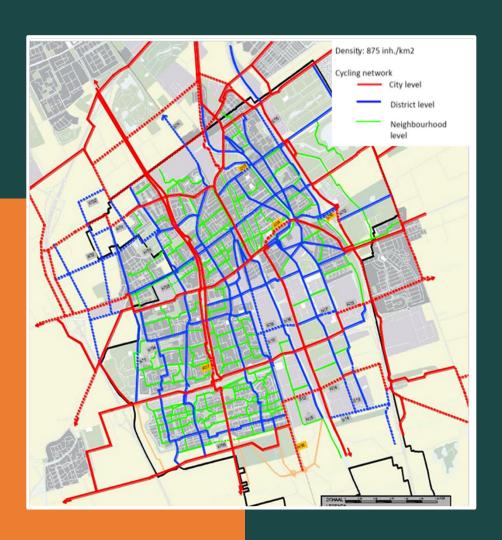




Learning From Their Mistakes



- or High-profile failure of demonstration route in Tilburg in 1977: inconsistent design; inconvenient route selection which relegated cyclists to back streets
- Second demonstration route failure in The Hague in 1978: lack of connectivity and consultation led to low usage; huge backlash with local business owners
- o'o The lessons learned from these two failed experiments were applied to the highly successful 1979 Delft Cycle Plan



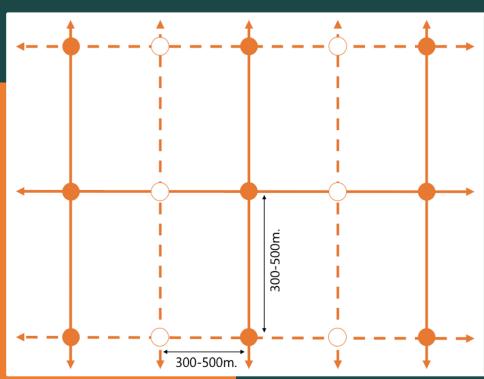
Think at the Network Level



- Nather than focusing on a single route, in 1979, Delft officials decided to implement a city-wide cycle network
- After consulting with 4,700 households, three networks (of varying grid sizes) were planned; each with a specific journey type, length, and user in mind
- Completed in 1987; lessons learned inform the CROW Manual network design principles of directness, safety, comfort, cohesion, and attractiveness

#1: Cohesion

- o Refers to the idea that cycling infrastructure should be designed to create a seamless, interconnected system of high-quality routes that allow cyclists to travel from any origin to every destination in and between cities o The goal is to ensure that different
 - parts of the network "fit together" smoothly, so it is not just a collection of disconnected corridors, but a unified, well-integrated system that is only as good as its weakest link



Source: DTV Capacity Building

OOD DUTCH CYCLING EMBASSY

#2: Directness

- Actual routes
 PRINCIPLE
 BICYCLE NETWORK
 max 1.20

 Actual routes
 OTHER PARTS OF THE
 BICYCLE NETWORK
 max 1.30-1.40
 - Source: DTV Capacity Building

- Property of the total travel distance
- or underpasses, so that cyclists rarely have to put a foot on the ground



#3: Safety



- Aims to create an environment where cycling is inherently safe by minimizing conflicts between road users and reducing the severity of collisions
- o'o Differences in speed and mass are avoided, and where they can't be reduced by design, traffic types must be separated
- or This extends to the junction, where protected intersections, roundabouts, and continuous paths improve feelings of safety by keeping cyclists in a raised, prioritized, and visible position

OOD DUTCH CYCLING EMBASSY

#4: Comfort

COMFORT: minimal stops or nuisance

Comfort cycling experience

Cycling policy objectives

Source: DTV Capacity Building

- o'o Ensures cycling is a pleasant and stressfree experience, attracting a broad range of users, from children and the elderly to commuters and tourists
- experience minimal nuisance, by including many design elements such as smooth and well-maintained surfaces, gentle slopes and minimal stops, wide and spacious paths, protection from the elements, and low-stress interactions





ATTRACTIVE

- Green
- Open
- Water
- Well maintained
- Quiet streets

Source: DTV Capacity Building



UNATTRACTIVE

- Traffic
- Congestion
- Industry
- Dark / unlit

c>o Employs beauty—such as art, lighting, nature—to create a user experience that entices people onto a bike

#5: Attractiveness

- or This means choosing routes that are integrated with natural, well-lit, vibrant spaces, and avoiding routes in industrial, dark, and deserted ones
- o By creating corridors that engage the senses, with a high degree of variety and interest along the way, cycling becomes not just a practical choice but also a pleasurable one





Don't Ignore the Weakest Link



- A network is only as good as its weakest link: often at the intersection where the majority of collisions occur and the cycling infrastructure can "disappear"
- Signalized and unsignalized junctions are physically protected and designed to reduce speeds and raise awareness, increasing safety for all road users
- o Raised and continuous cycle path at side streets keeps vulnerable users in a raised, seamless and prioritized space

Road categorization

1. National /
Regional through routes
Speed limits 130/120/100/80km/h
(80/75/62/50mph)

No cycling

- Local distributing –
 collector roads

 Speed limits 50km/h (31mph)

 Physical or Visible separation
- 3. Access streets / Places Speed limit 30km/h (18mph) No separation needed





Every Mobility Plan Needs a Car Plan



- o Effective traffic circulation—ie. reducing the volume and access of motor vehicles—can form an easy and effective part of a city's cycling network
- o>o Dutch cities create a "hierarchy of roads"—differentiating between local and through traffic—diverting cars from economic and residential areas
- Such measures improve the safety and comfort of local access roads, and make walking and cycling time competitive





Design for the Behaviour You Want



- Road users can best be forced to travel at lower speeds through engineering
- o'o Drivers will travel at whatever speed they feel comfortable, and police can't enforce posted speed limit everywhere
- Physical methods are used to slow motorists down such as road narrowing, chicanes (staggered build-outs), texture (such as brick), and speed tables; if speeding still exists, the street is sent back to the drawing board

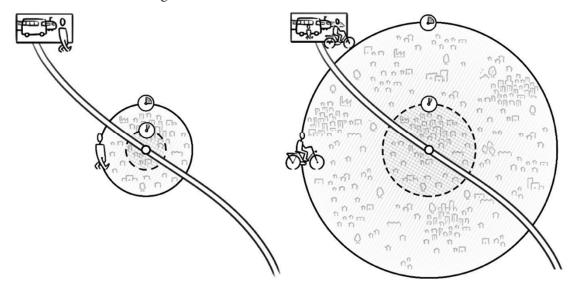


Use Bikes to Feed Public Transport



- Obole of all train journeys in the Netherlands begin with a bike ride to the station (750,000 trips per day)
- o'oNearly a quarter all kilometers cycled in Dutch cities are to or from a station
- o²o20% of Dutch people live within one kilometer and 80% live within five kilometers of at least one station
- o 21% of bike-train trips replace car trips; 66% of bike-train users have access to a car but prefer not to use it

Figure 1. Mechanism of increased catchment areas





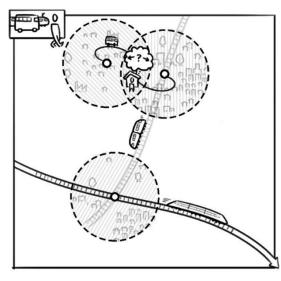


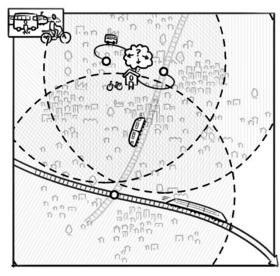
bit.ly/dcebiketrain

Figure 2. Mechanism of increased choice

How does integrating cycling and public transport improve regions? It increases:

- 1. Catchment areas
- 2. Station choice
- 3. Personalisation/customisation
- 4. Market base
- 5. Competitiveness of transit
- 6. Liveliness of public space
- 7. Agglomeration effects

















Always a Secure, Free Parking Space



- oreated 300,000 bicycle parking spaces at Dutch railway stations
- o'o From that process, ProRail developed design principles: proximity (to platform), always space, safety, good flow, comfort & ease, free of charge, sheltered, service, and sustainable
- Spaces total 600,000 nation-wide, with 100,000 to be added by 2030





"The Blue and Yellow Miracle"



- o For €4,65 per 24-hours, residents can borrow one of 22,500 bicycles from one of 300 NS train stations across the country (up to two at a time) using the same public transport card
- o 1,000,000 subscribers nationwide average 6,000,000 rentals per year
- 54% of users reveal they use the train more often because of its availability
- o'o 8% admit that, without it, they would drive a car door-to-door instead of using it as part of a bike—train trip



Electromobility as a Range Extender



- o E-bike users travel 64% further than 'normal' bike users; average e-bike trip journey length 5.9 km (versus 3.6 km)
- o'o From 2010 to 2022, e-bikes have helped Dutch seniors cycle 33% more total distance (averaging 6.8 km per trip)
- O Women make 85% more e-bike trips than men (456 vs. 245 million per year)
- o Teenagers living 10 to 20 kilometres from school are more likely to travel there by e-bike (26%) than a regular bike (15%)



A New Frontier For Dutch Cycling

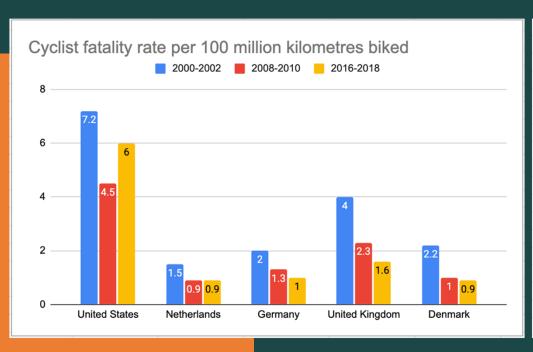


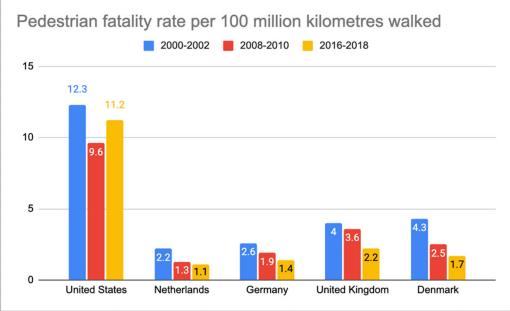
- or Direct and comfortable cycling routes in combination with the e-bike—can encourage people to cycle longer distances and reduce car congestion
- o Provinces and regions across the Netherlands are connecting residential, commercial, and educational hubs with wide, smooth "continuous cycling routes"
- o'o Specifically designed to cater to journeys of 5 to 15 km: cause the biggest traffic problems because they're too short for the train and too long for the bus/bike





"If the U.S had achieved the same improvements in traffic safety as the Netherlands [since 1970], 22,000 fewer Americans would have died on our roads in 2015." – Vox





Obese? Not us! Why the Netherlands is becoming the skinniest EU country

Every EU country will be more obese by 2030 - except one. DW's Conor Dillon went to the Netherlands to find out how the Dutch keep eating french fries, mayo and frikandels without getting fat.





"A 2022 IPSOS STUDY FOUND PEOPLE FROM THE NETHERLANDS ARE THE MOST PHYSICALLY ACTIVE ON EARTH; GETTING AN AVERAGE OF 12.8 HOURS OF EXERCISE PER WEEK."

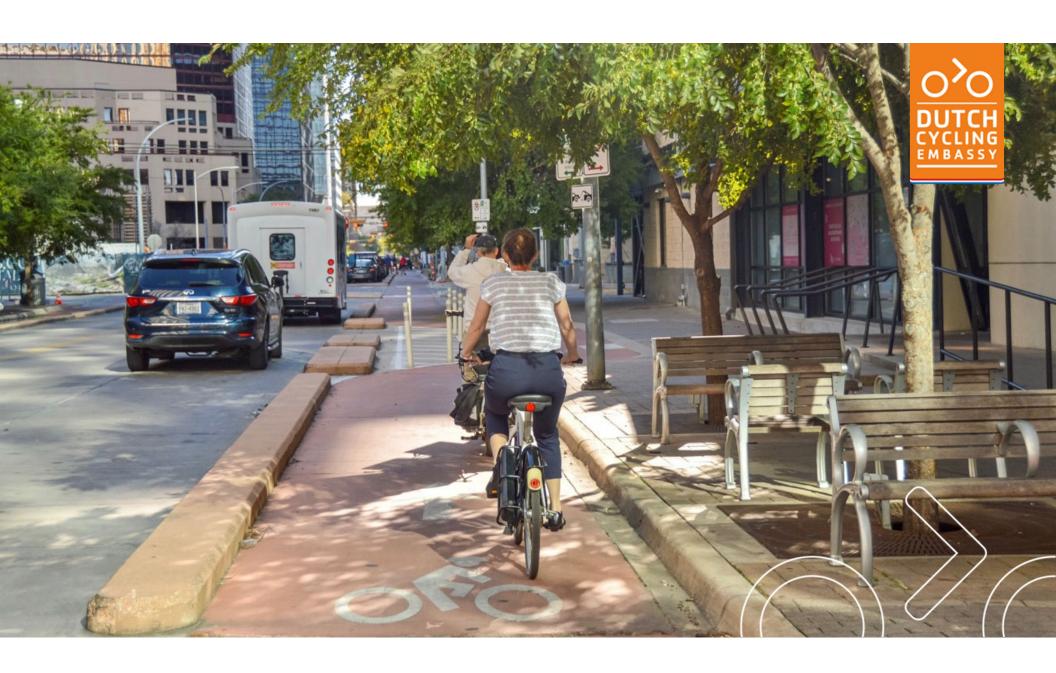
"CYCLING LEVELS IN THE NETHERLANDS ARE ESTIMATED BY TO PREVENT 6,500 PREMATURE DEATHS PER YEAR, SAVING THEIR ECONOMY €19 BILLION; EQUAL TO 3% OF THEIR GDP."

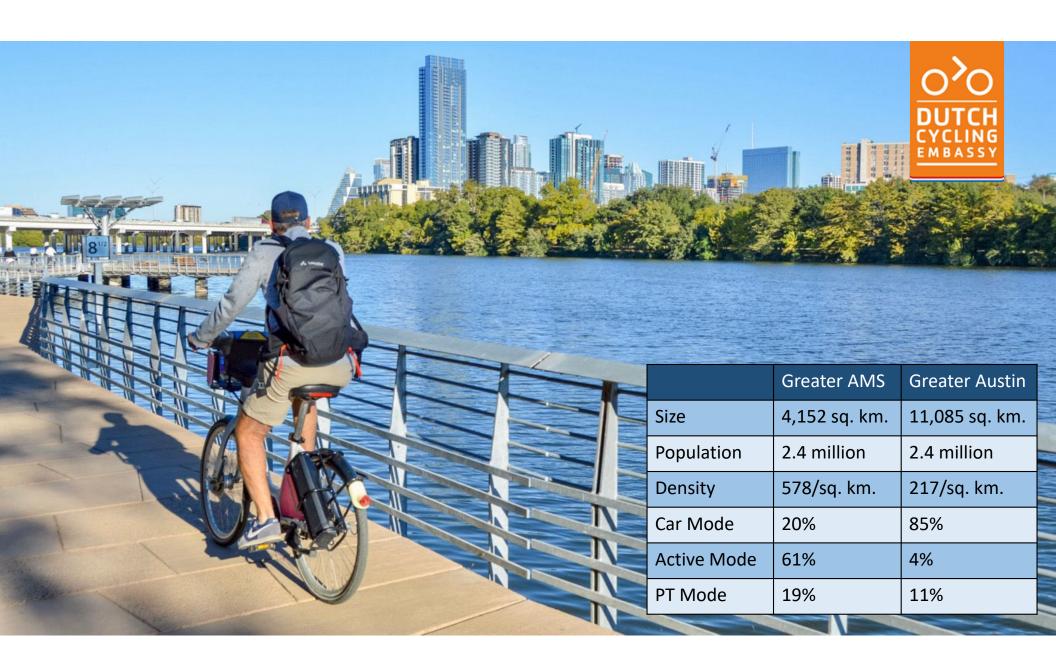


Surprise: Bike-friendly Netherlands named best place in the world to be a driver



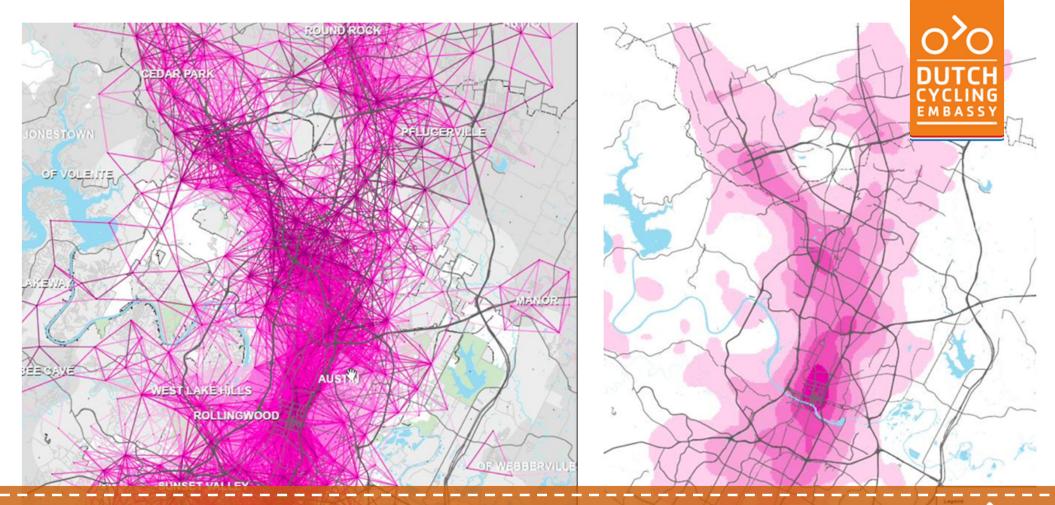
"IF YOU DESIGN A CITY FOR CARS, IT FAILS FOR EVERYONE, INCLUDING DRIVERS. IF YOU DESIGN A MULTI-MODAL CITY THAT PRIORITIZES WALKING, BIKING, AND PUBLIC TRANSPORT, IT WORKS FOR EVERYONE, INCLUDING DRIVERS." - BRENT TODERIAN







2012 THINKBIKE WORKSHOP obo



#1: INVEST WHERE THE SHORT TRIPS ARE O'O



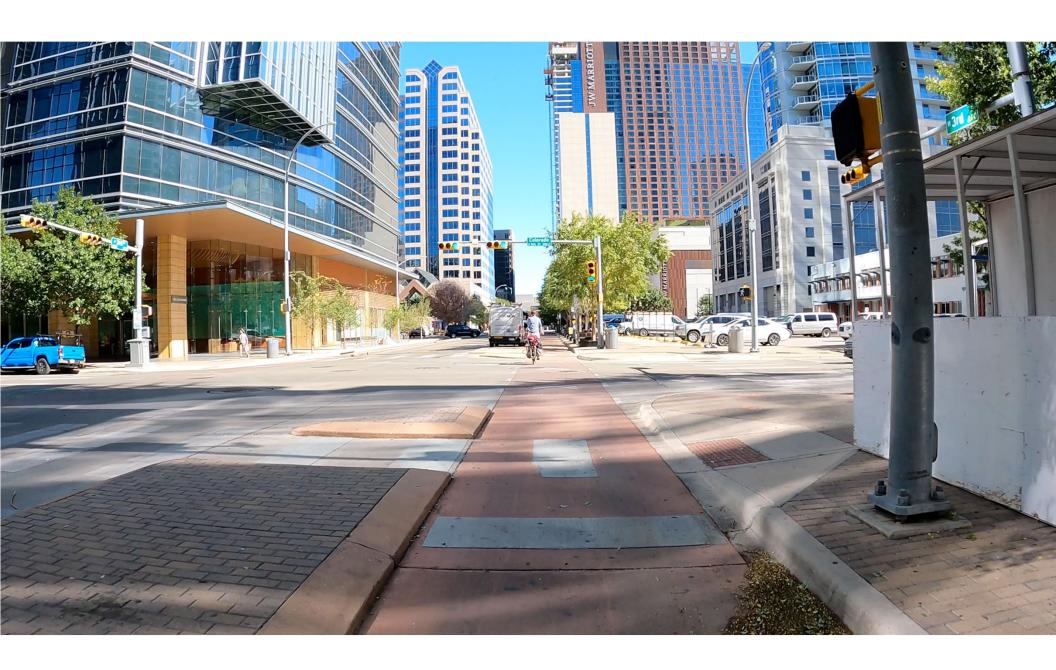
#2: USE CYCLING TO FEED TRANSIT 000

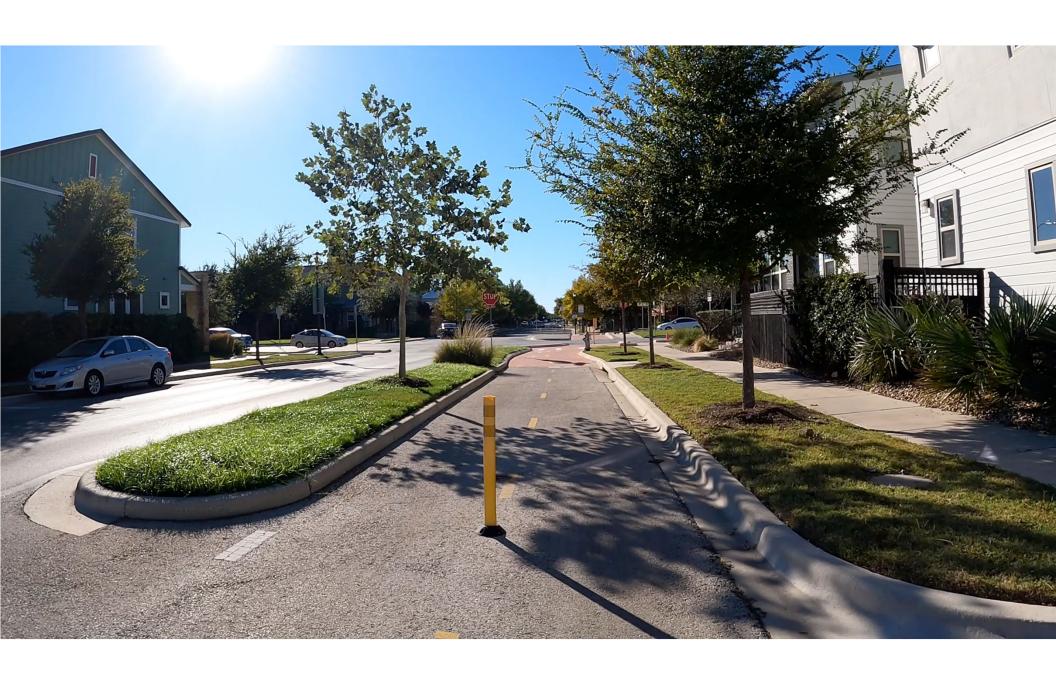


#3: YOU MUST PLAN FOR ALL MODES O'O



2014 BICYCLE MASTER PLAN O'O









A Dutch-Inspired Success Story



- obscince 2011, Austin has built 380 km of AAA ("all ages and abilities") bikeways and 16 protected intersections across the city
- oboo Their goal is 650 km of red-tinted, Dutchinspired infrastructure by 2025, converting 15% of short car trips (less than 5 km)—now half of all journeys—to bicycle
- ob Funded by active travel bonds \$137 million approved by 59% of voters in 2016, and \$460 million approved by 67% in 2020







WHAT KIND OF FUTURE DO WE WANT? 000

