Bike Lane Striping

The devil is in the details

Bike lane striping

Outline

- Where are we at?
- Where are we going?
- Bike lane characteristics
- Current guidance
- Recommendations and examples

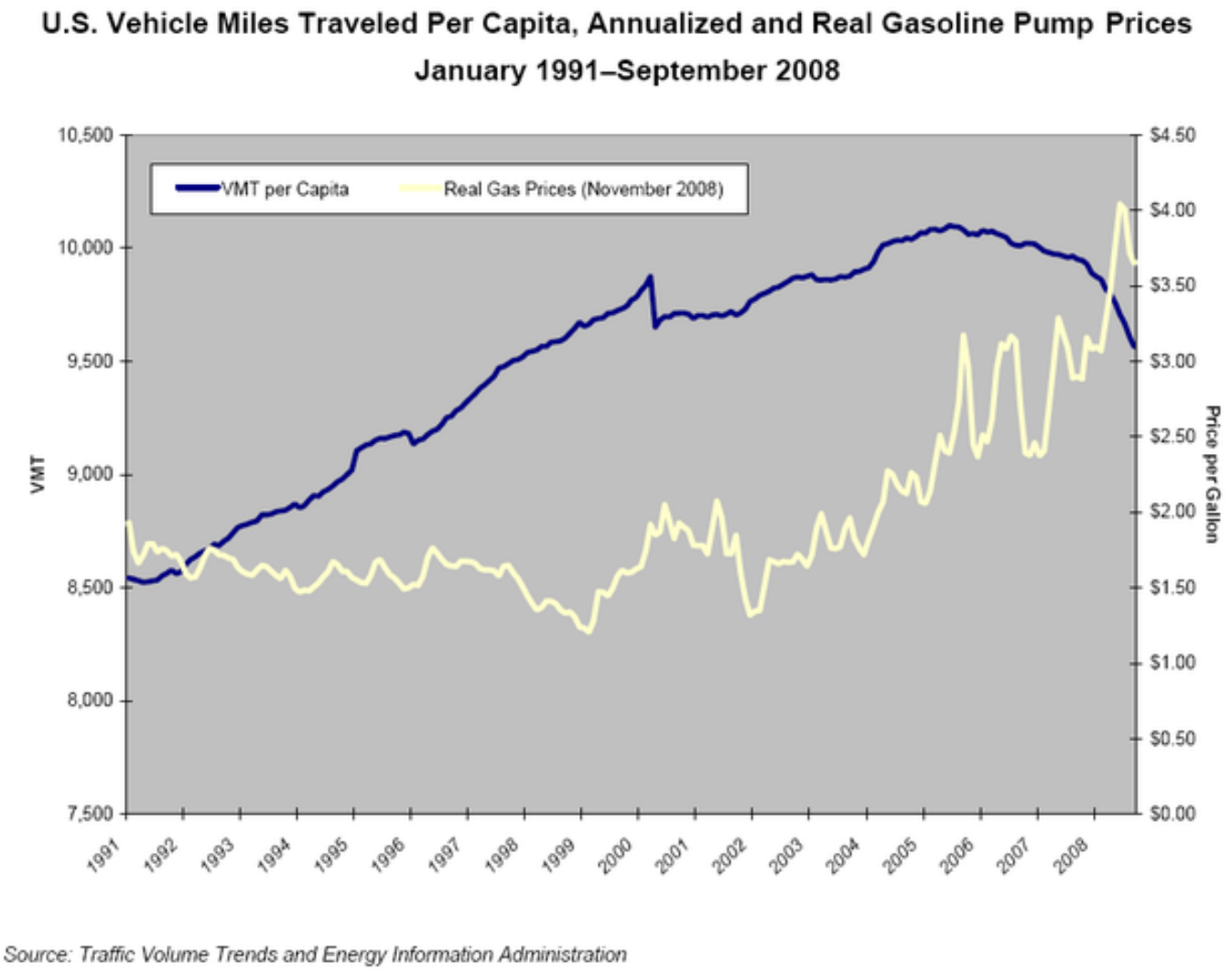
Bike lane striping

Where are we going?

- Demand for motor vehicle transportation on a per capita basis has peaked
  (per capita VMT as the measure)
- Demand for other forms of transportation is growing
- Diversification of our transportation system for multiple reasons
- A more complicated operating environment for all traffic participants

Significant growth (percentage) in bicycle infrastructure moving forward

Bike lane striping



Source: Traffic Volume Trends and Energy Information Administration

Current conditions – where are we at?

- First streets with bike lanes are currently being implemented in Indiana
  - A new element in our traffic scheme
  - A new experience for local drivers and bikers
  - We will be learning new skills

- Crash statistics tell us
  - Less than 10% of car-bicycle collisions involve overtaking situations
  - The majority of car-bicycle collisions involve turning movements

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Current guidance – focus not on turning movements

- AASHTO Guide to Development of Bicycle Facilities
- MUTCD
- City of Chicago bike lane striping guide
- Davis, CA

Focus is on striping between intersections

Bike lane striping

Bike lane characteristics

- Run parallel to, and right of motor vehicle lanes, adjacent to the curb
- Separates motor vehicle and cycle traffic
- Generally carry traffic moving at different speeds than motor vehicle lanes
    - Cars are faster during free flow situations in motor vehicle lanes
    - Cycles are faster when motor vehicle flow is inhibited

- Are a thru-lane to the right of a right turn lane
- Requires yielding as appropriate to the through movement

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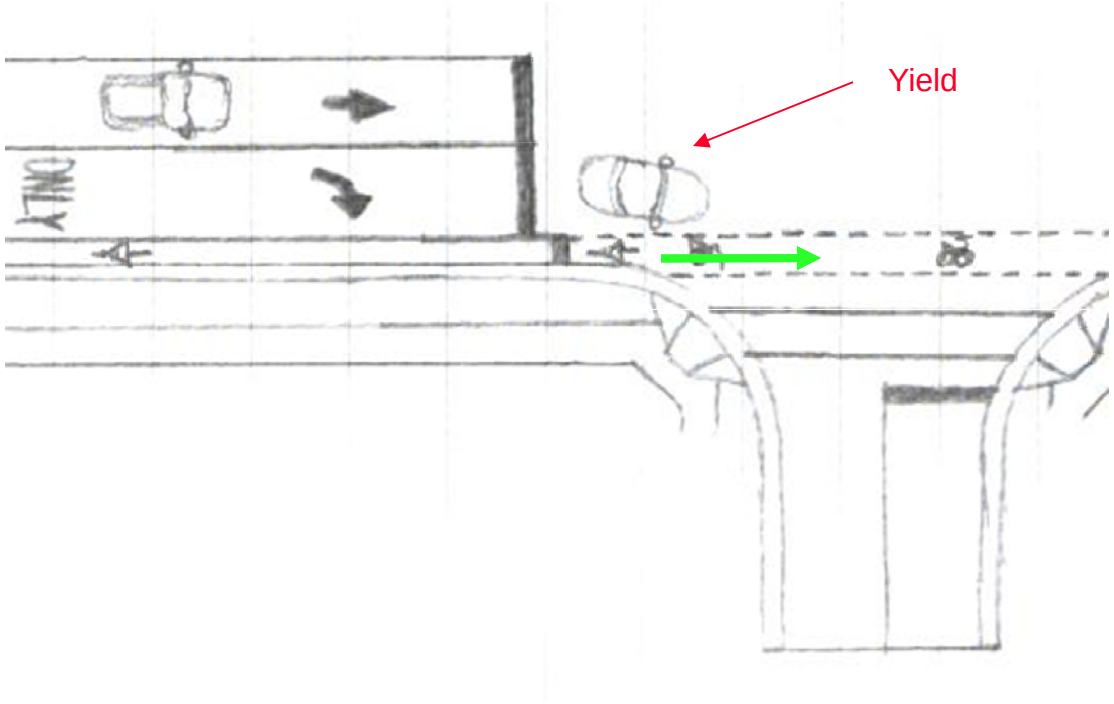
Bike lane characteristics



Bike lane characteristics

In most aspects, no different than a sidewalk with pedestrians.

$$f_p = \frac{(v_x)\ (w/Sp)}{3{,}600}$$

f_p = pedestrian blockage factor

v_x = pedestrian flow rate

W = lane width

S_p = pedestrian walking speed

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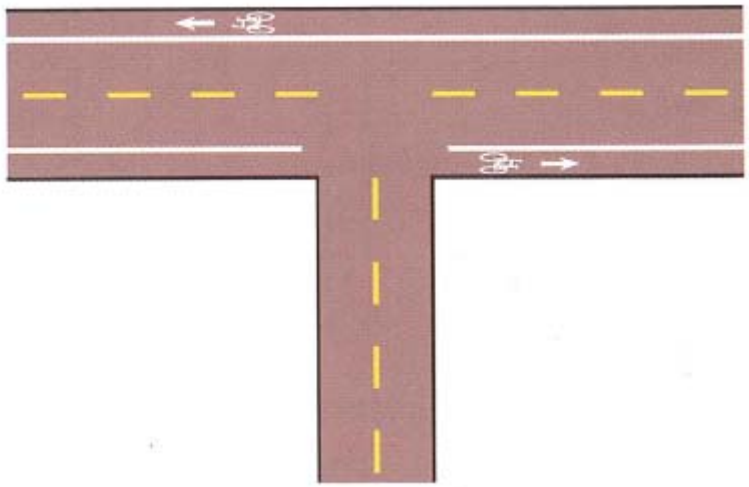
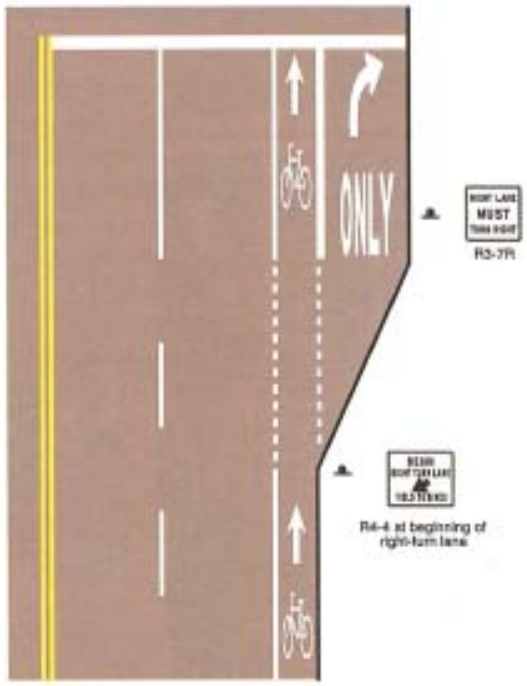
Current AASHTO & MUTCD guidance – what is missing?

Clear signage and markings at conflict points that clarifies right of way issues, expected movements, and behavior of traffic participants, in particular at and through intersections.





a. Right-turn-only lane

Bike lane striping

Broad recommendations

Provide clear rules of the road guidance at intersections / conflict points

- Striping, signage, signalization (long term)

Build upon current MUTCD striping logic

- Double line – maximum / special restrictions
- Solid line – discourages / prohibits crossing
- Broken line – permissive condition
- Dotted line – guidance

Implement a hierarchy of striping based upon the hierarchy of traffic participants

- Pedestrians
- Cyclists
- Motor vehicles

Goal: clear perceptibility of pedestrian / bicycle / vehicle routing through intersections

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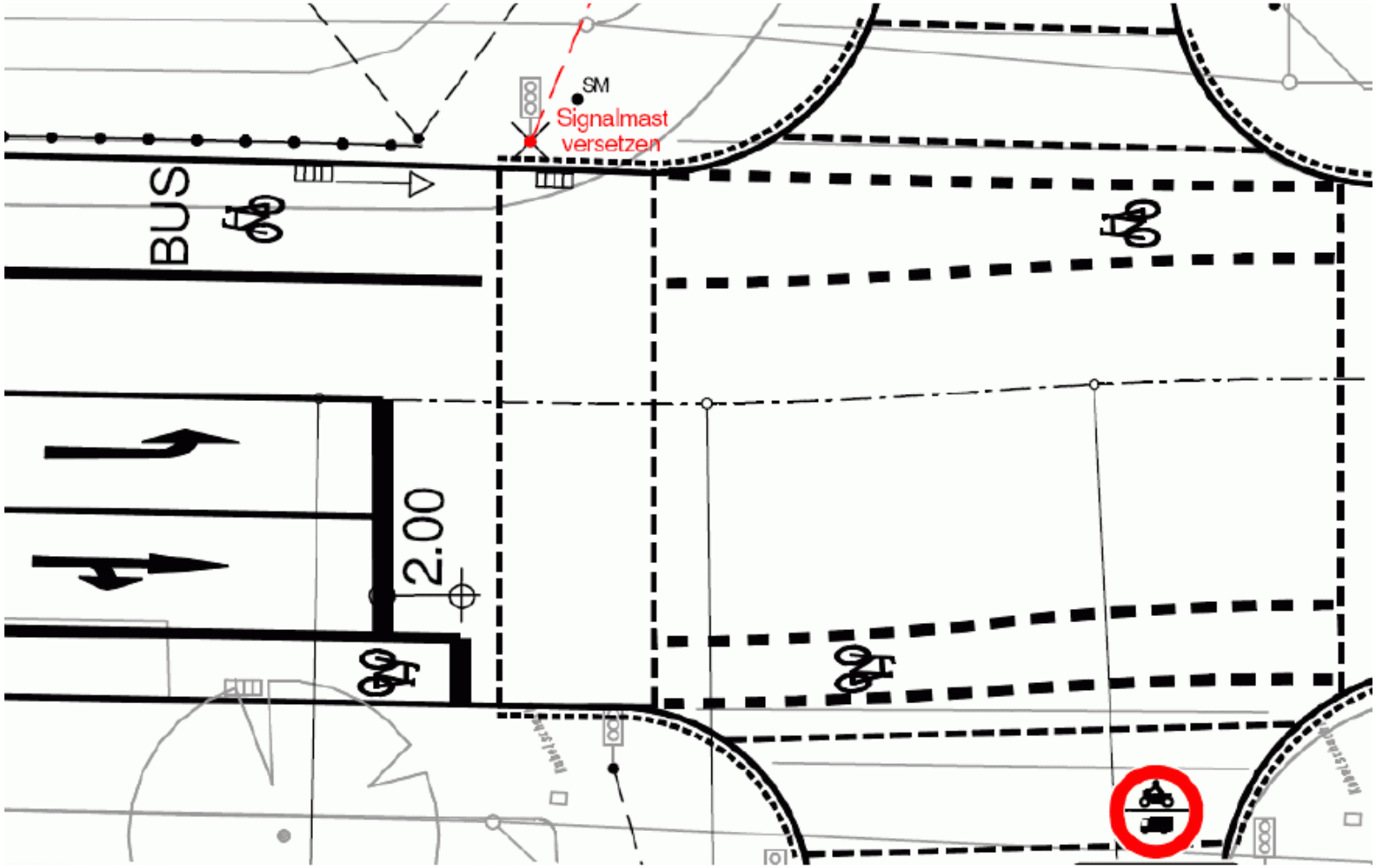
Specific recommendations

- Dashing of bike lines in following areas
  - Through intersections
  - Commercial curb cuts
  - Where cyclist must leave bike lane to make left turn movements
- Maintenance of solid bike lane line to stop line at signalized intersections
- Advanced stop line for cyclists at signalized intersections
  - Line of sight
  - No right on red when bikes are present signage
- Bike symbol at conflict points of major intersections
- Use of bike symbol instead of diamond in bike lanes

Bike lane striping



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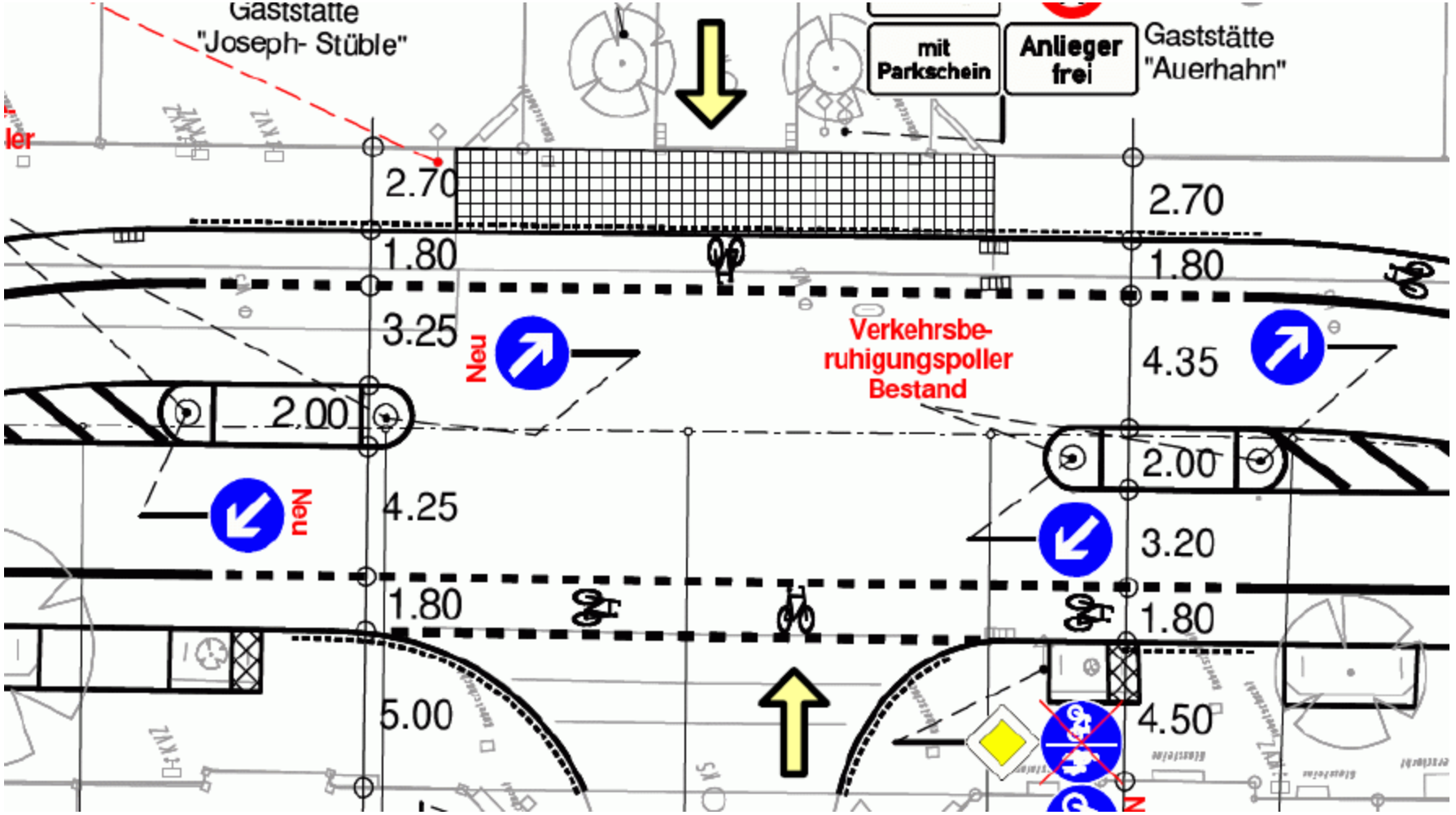

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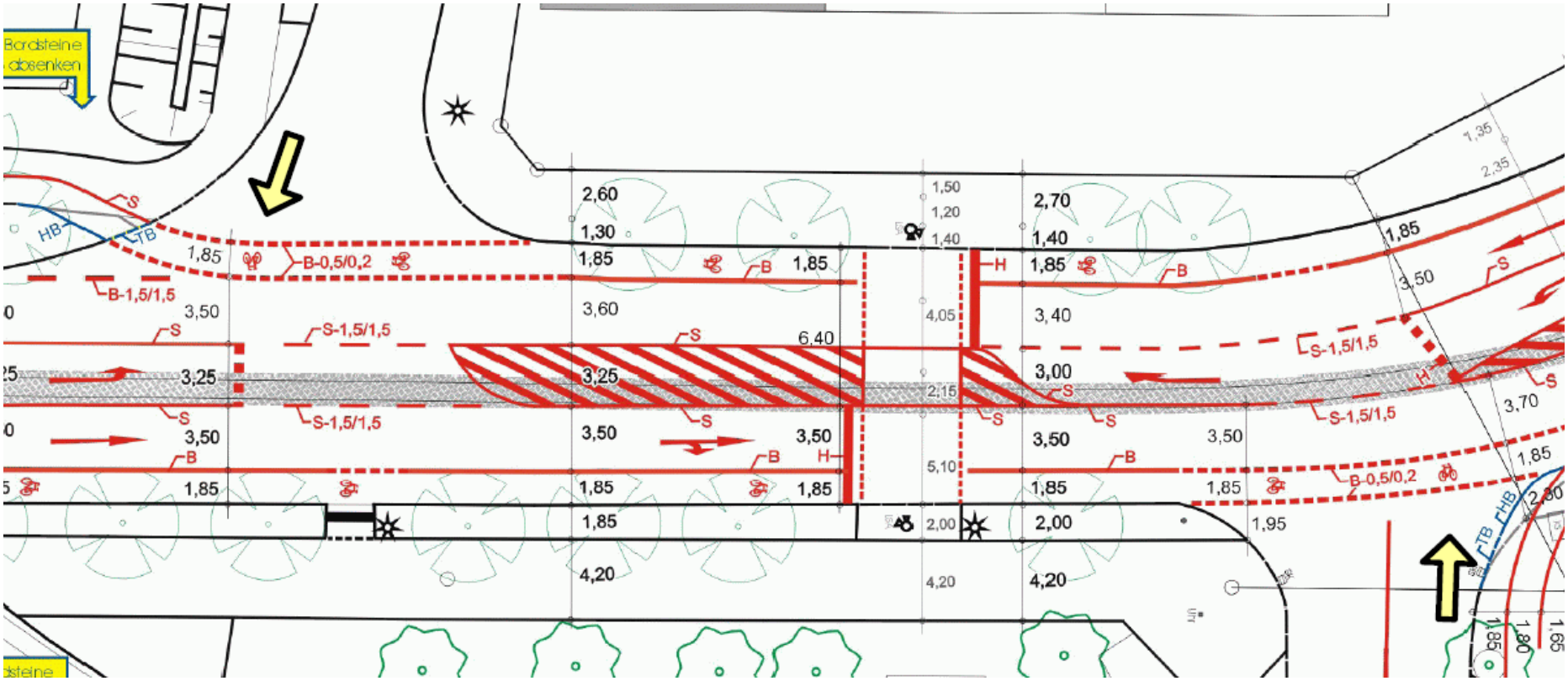

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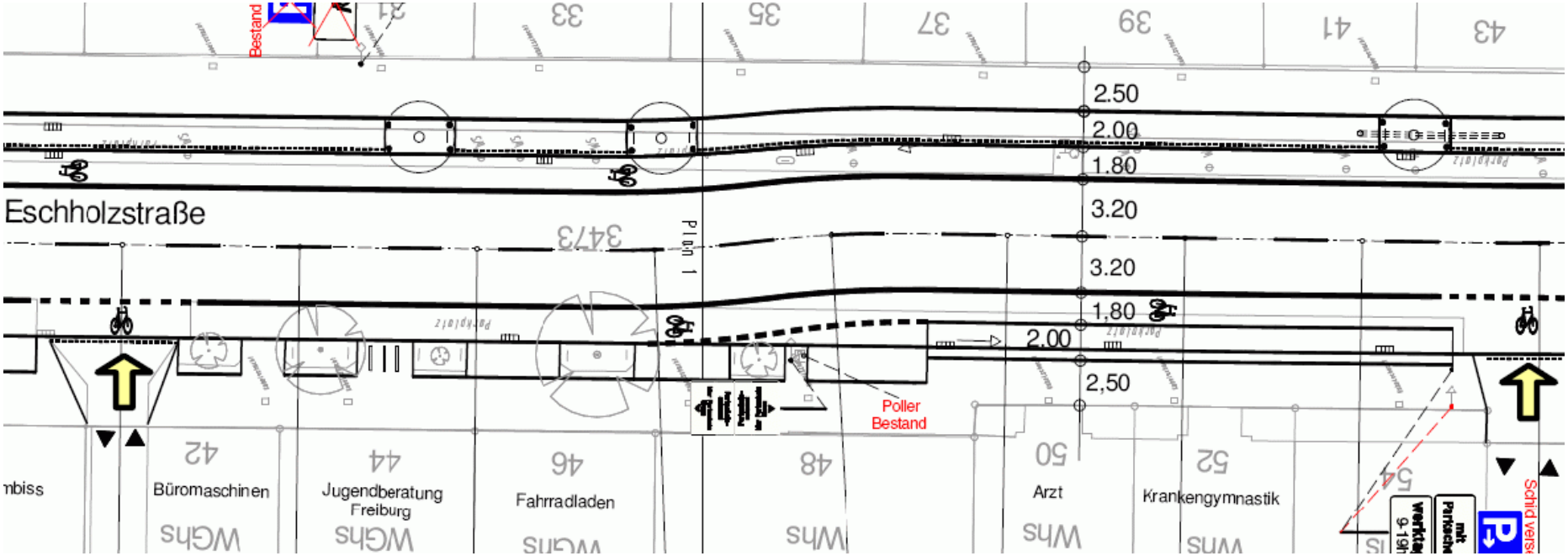

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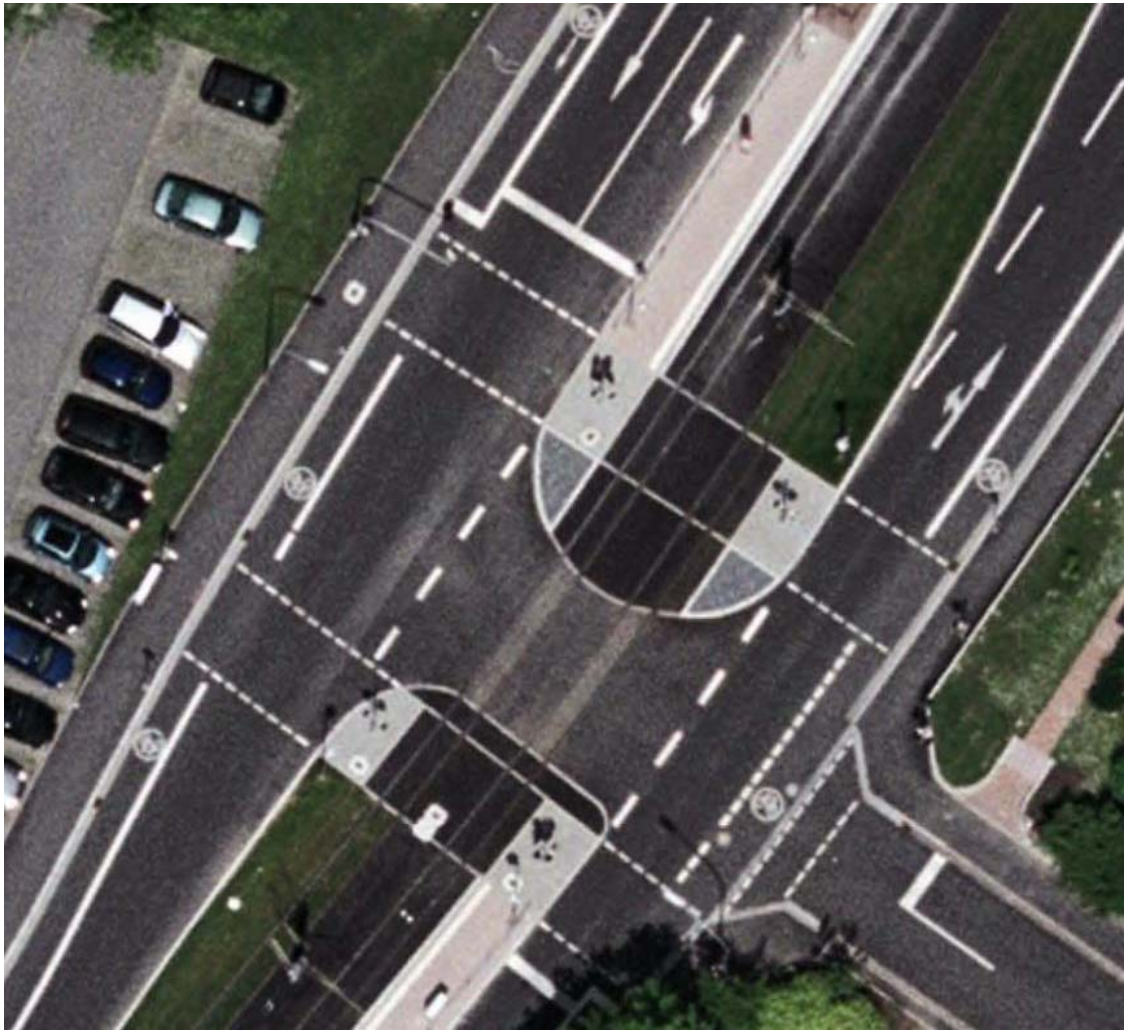

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Summary

- Where are we going?
- Where are we at?
- Bike lane characteristics
- What is currently missing?
- Recommendations and examples