

When are bike lanes needed in urban/suburban settings?

(Refer to the speed/ADT chart on page xx for shoulders on rural roadways)

In general, bike lanes are needed on busy, high-speed urban and suburban thoroughfares, while shared roadways work well on low-speed, low-volume streets. Use the chart to determine when a bike lane is needed. When speed and volume intersect in a gray area, use the matrix to guide decision-making: assess as many of the indicators in the matrix as possible. If they overwhelmingly point to an increased or decreased need for bike lanes, the decision is made easier. In situations that are not clear-cut, many other factors should be considered and weighed, along with good judgment. Neither the chart nor the matrix should be used as absolutes.

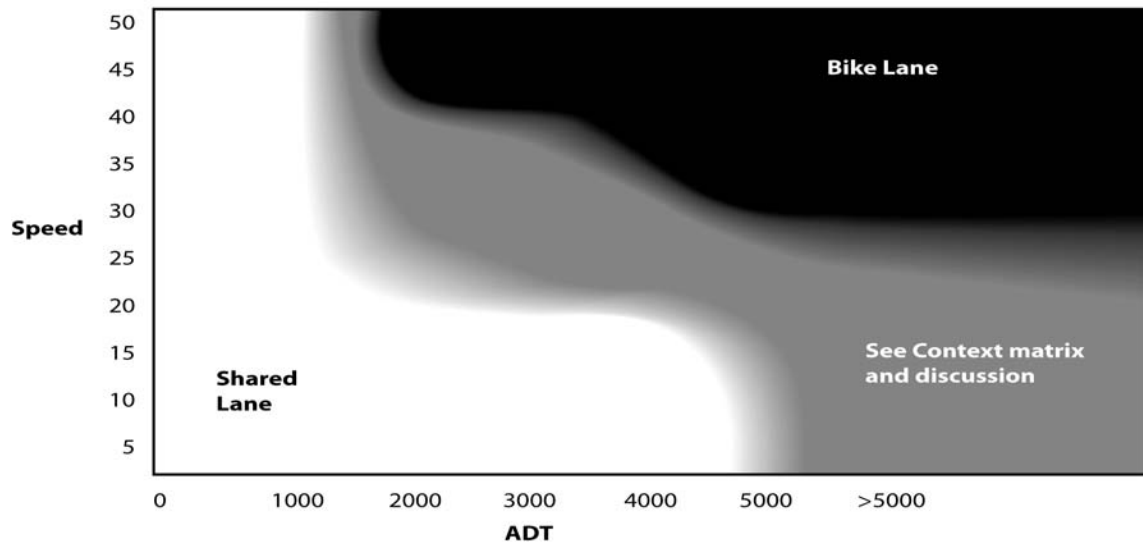


Table X – Context matrix

Context	Need for Bike lane
1. Land Use indicators	
Urban Center, CBD	Decreases
Suburban	Increases
Buildings at back of sidewalk	Decreases
Buildings set back from roadway (parking lots front street)	Increases
On Street Parking	Decreases
Short block length	Decreases
Long block length	Increases
2. Traffic speed/volume indicators	
Signal coordination timed at higher than posted speeds	Increases
Signal coordination timed at lower than posted speeds	Decreases
Peak Hourly Traffic Volume greater than 10%	Increases
3. Roadway characteristics	
Wide roadway / multiple travel lanes	Increases
Steep grades: uphill	Increases
Steep grades: downhill	Decreases
4. Bicycling demand indicators	
Popular Route to School	Increases
Provides continuity of bike lanes, routing or trail	Increases
Other high-use indicators	Increases

Discussion

Land Use influences traffic patterns and the comfort and confidence of bicyclists. Urban centers, with narrower travel lanes, buildings at the back of walk and on-street parking give cues to motorists to pay more attention to their environment and to slow down. Wide suburban streets with few potential risks to drivers increase motor vehicle speeds and decrease driver vigilance.

Buildings Setbacks determine a human scale streetscape. Buildings at the back of walk reduce motor vehicle speeds and provide direct access to destinations; under these conditions, bike lanes are less needed. Buildings set back from the roadway, with parking in front, create conditions (lowered driver vigilance, speeding) whereby bike lanes should be provided.

On-Street Parking benefits bicyclists and pedestrians by reducing motor vehicle speeds. The benefit is lower if on-street parking is under utilized, due to ample off-street parking.

- Note: building setbacks and on-street parking interrelate: buildings at the back of walk and on-street parking go hand-in-hand.

Block Length: urban centers have shorter blocks and suburban areas have longer blocks. Bike lanes are more necessary where blocks are long, as riders need to travel further on the thoroughfare to access destinations.

Prevailing Speed is related to posted speed, but drivers will drive faster if the roadway cues allow them to. Speed studies are often not practical for planning purposes; therefore the chart relies on posted speed. However, if the travel speed is known to be higher or lower than the posted speed, that information should be used to determine if bike lanes are needed.

Signal Coordination: signals timed at 25 MPH or less allow bicyclists to share the travel lane with motor vehicles; signals timed at greater than 30 MPH make sharing more difficult.

Peak Hourly Traffic Volume If a roadway with moderate traffic volumes experiences an intense peak for a sustained period of time, bike lanes are needed to provide room during this period.

Roadway Width/ Number of Travel Lanes influence the behavior of drivers and the comfort and confidence of bicyclists. Wide travel lanes and multi-lane roads increase the likelihood of speeding by drivers, decreasing the desirability of lane sharing by bicyclists.

Steep Grade: Bicyclists travel uphill slowly and tend to meander. If constraints allow only one bike lane, it should be placed in the uphill direction.

Bicycle Demand is always a good reason to provide bike lanes, but lack of adequate bicycling facilities may mask a potential demand. School route, parks or community centers are reasons to favor providing a bike lane. Route continuity can be used to justify short segments of bike lanes that connect other bike lanes or a discontinuous trail.

Trade-offs: do you force bike lanes or change the context?

If the matrix indicates a need for bike lanes and there is simply no room for bike lanes, or the trade-offs are too burdensome, one option is to change the context so a shared roadway is more acceptable. For example, when there is a trade off between on-street parking and bike lanes, bike lanes can be eliminated if motor vehicle speeds can be reduced to less than 25 MPH, and if on-street parking is sufficiently utilized. For long segments (10 blocks or more) where constraints don't allow for bike lanes, another option is to provide a parallel route; the alternate route should be improved to favor bicycle travel (e.g. bike boulevard).