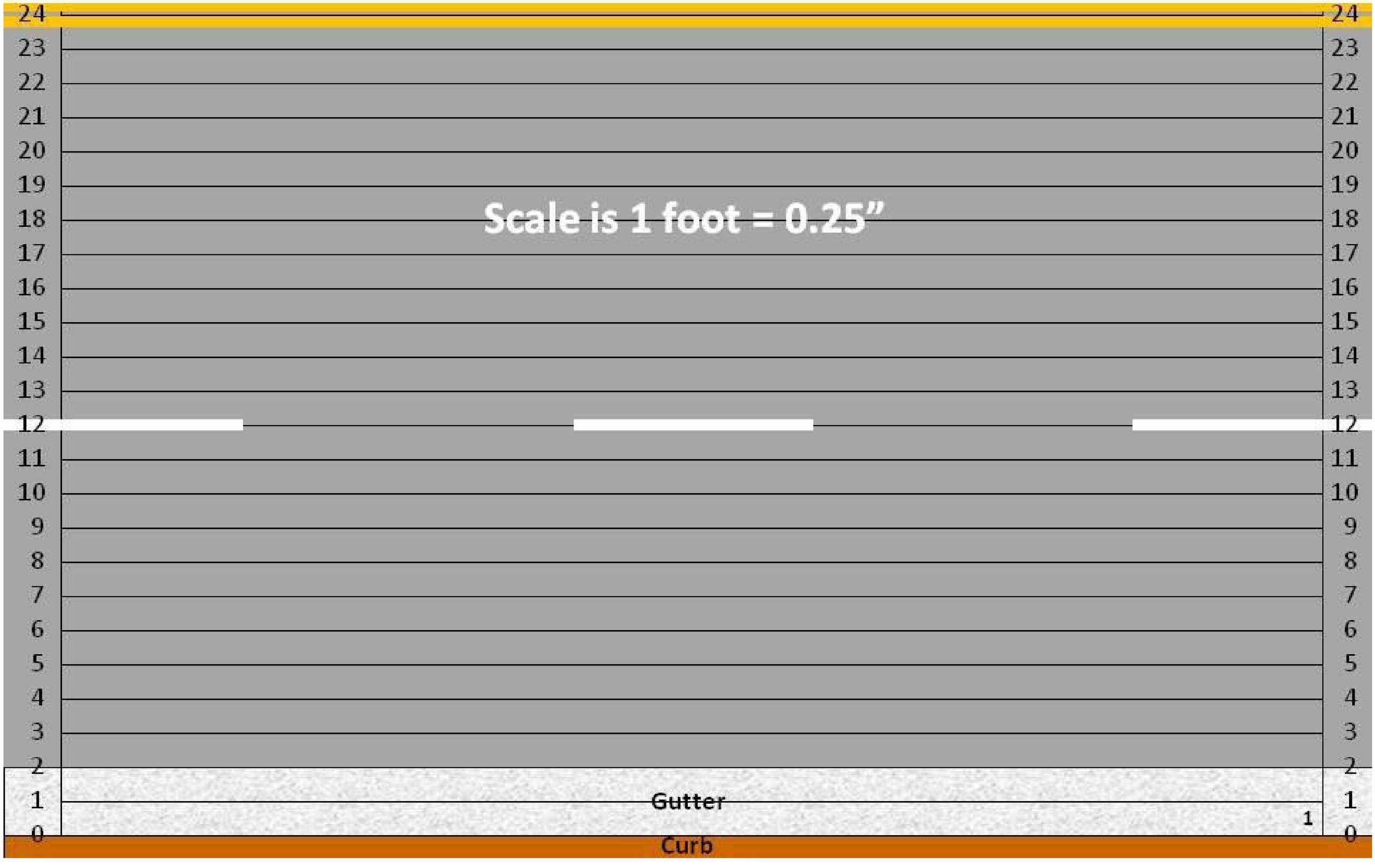
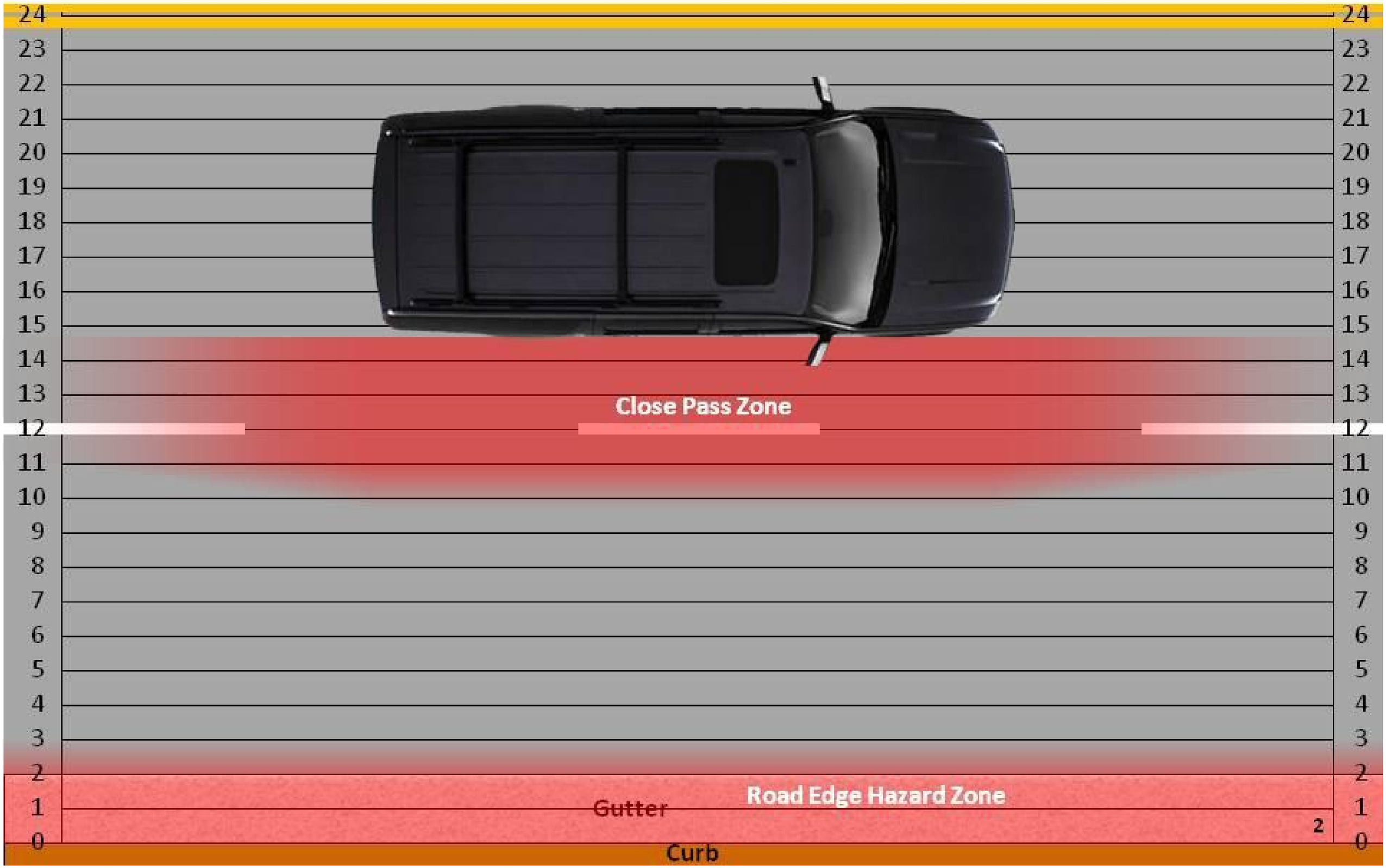
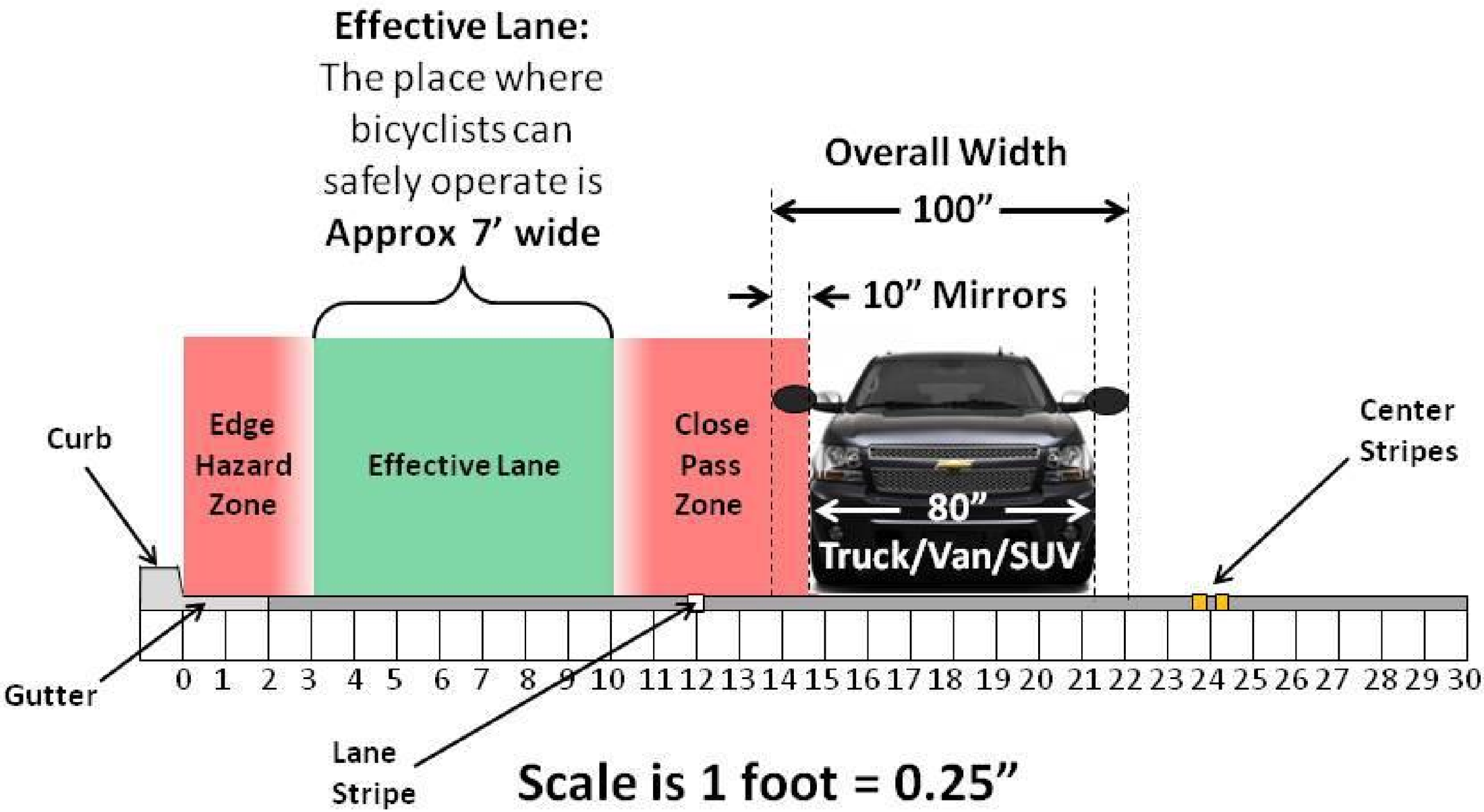
This is a scale plan view of half of a four lane roadway. It has two 12’ wide standard travel lanes, a 2’ wide gutter and a vertical curb face. Such roads are common in CA, and present specific hazards to bicyclists, at the road edge and from moving traffic.



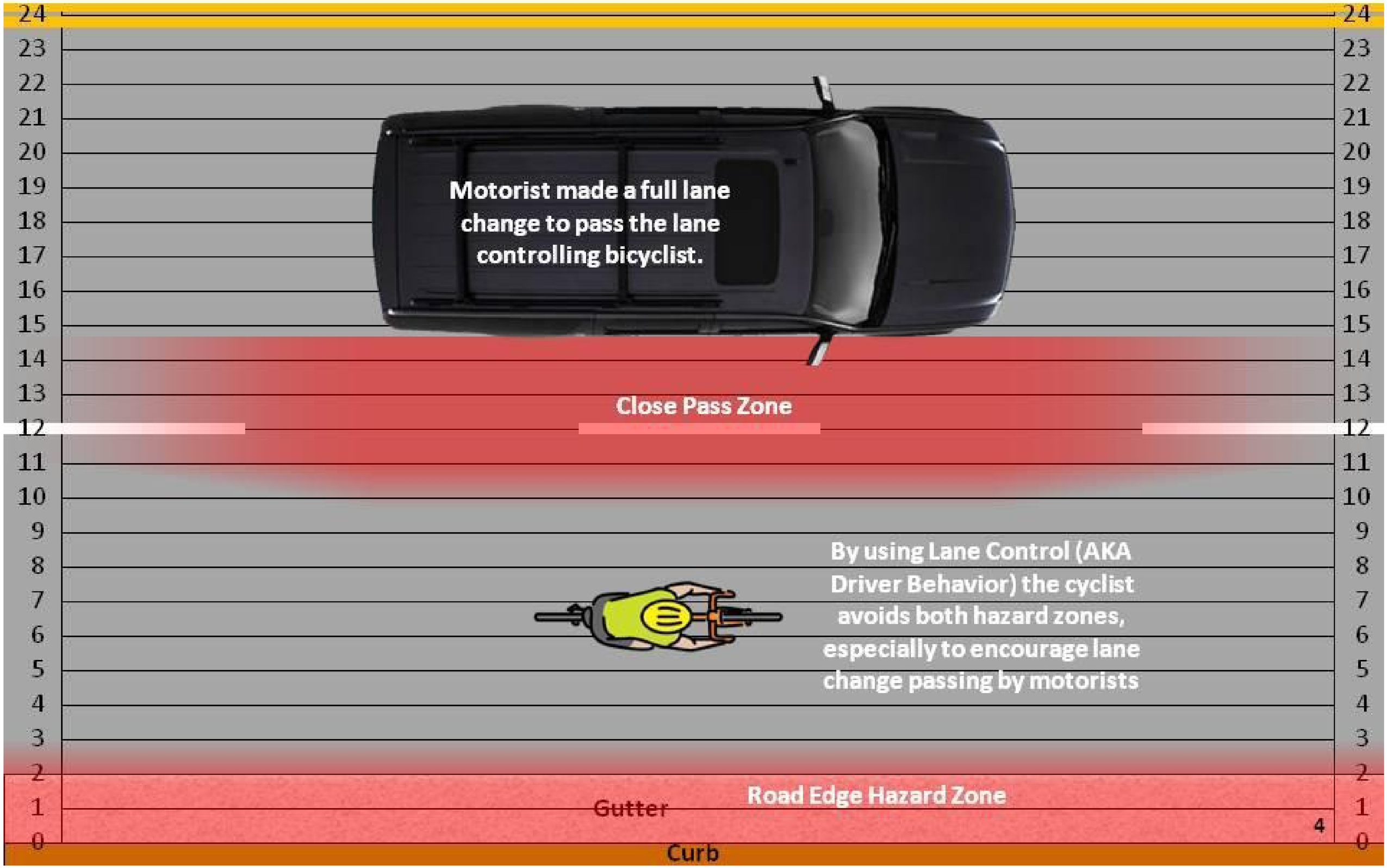
Here you can see the hazard zones as translucent red regions. The Road edge zone includes all of the gutter as well as foot or so of clearance from the gutter seam. The close passing zone of moving vehicles extends at least three feet beyond the mirrors.



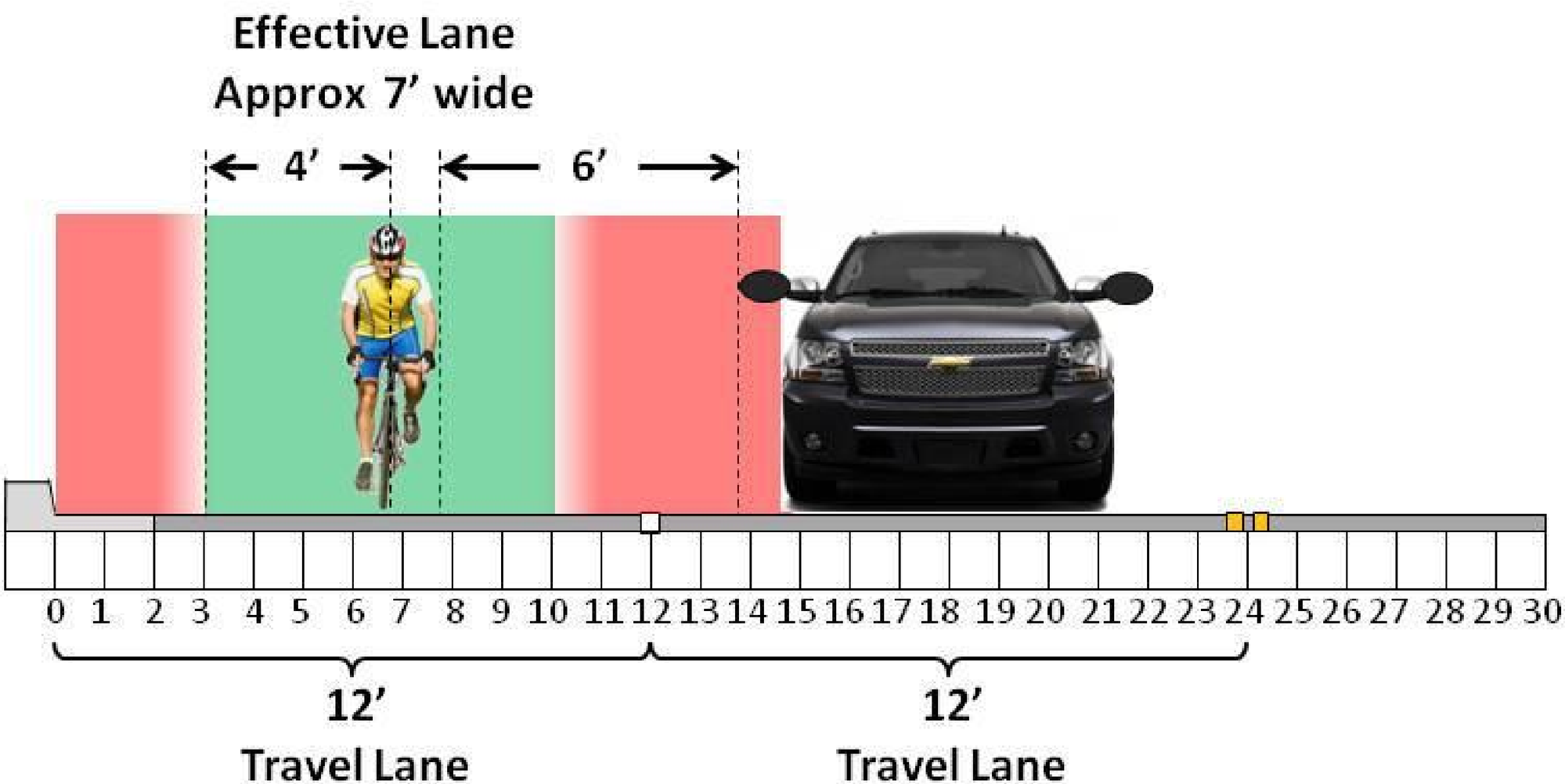
In this cross-section view, the hazard zones are displayed as vertical translucent red regions. The edge hazard zone includes all of the gutter as well as foot or so of clearance from the gutter seam. The close passing zone of moving vehicles extends at least three feet beyond the mirrors which in turn can and often do extend up to 10" beyond the side of vehicles. Not also the lane/center stripes.



A bicyclist that controls the right hand lane is avoiding , by the maximum margin, both the close passing zone of motor vehicles in the adjacent lane as well as the road edge hazard zone. This 12’ lane is NOT wide enough for side-by side lane sharing.

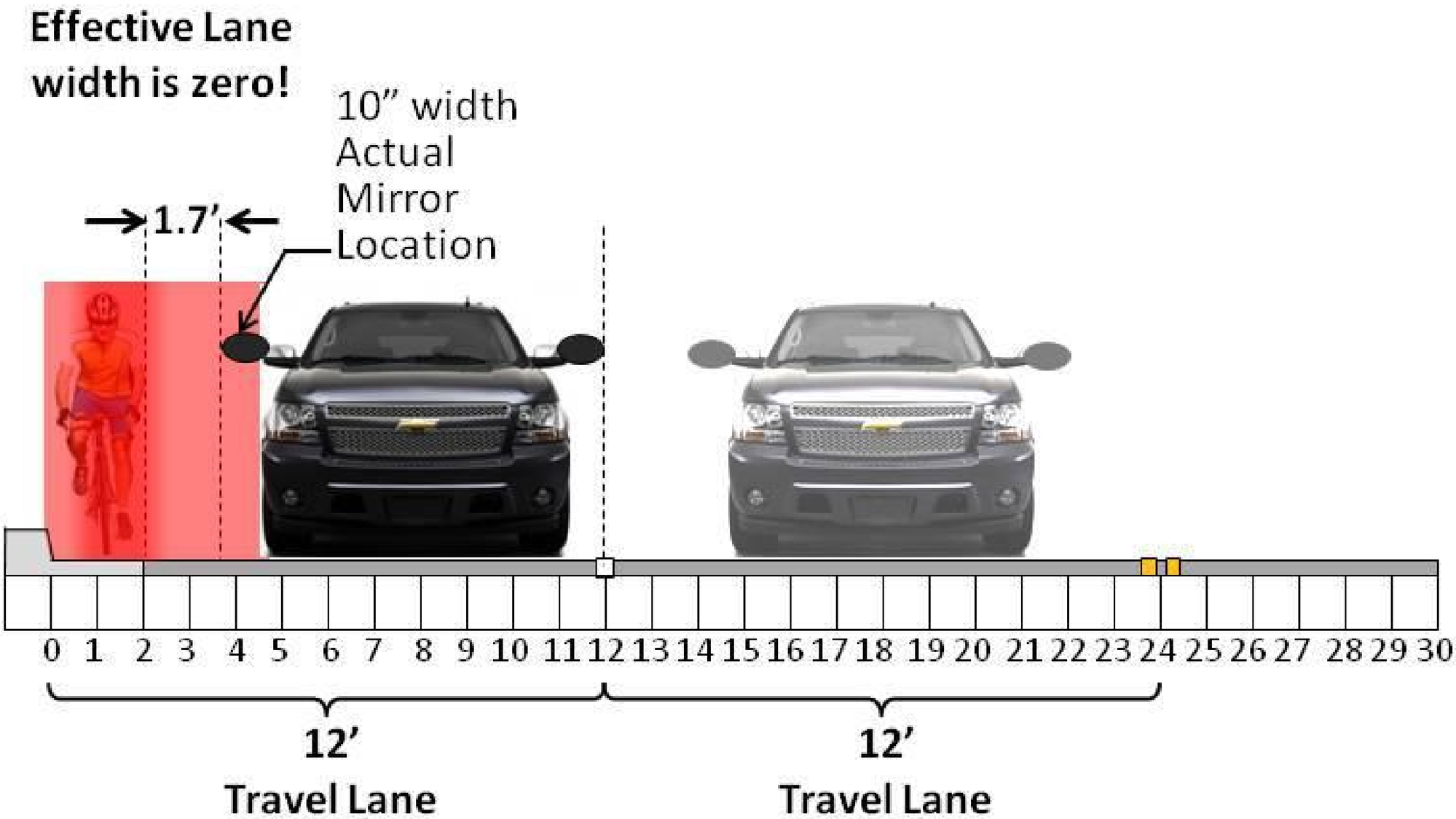


A 2 foot wide bicyclist that controls a standard 12’ right hand lane is avoiding, by the maximum margin, both the close passing zone of motor vehicles in the adjacent lane as well as the road edge hazard zone. This 12’ lane is NOT wide enough for side-by side lane sharing (see next slide).



A bicyclist riding at the edge, in this case the gutter, often seen on city streets, is in both the road edge and close pass hazard zones. Bicyclists riding in this uncomfortable way will be frequently passed dangerously closely, and be subject to gutter hazards.

A bicyclist riding near the edge of a standard 12’ wide travel lane, in this case in the gutter, often seen on city streets, is in both the road edge and close pass hazard zones. Bicyclists riding in this uncomfortable way will be frequently passed, sometimes dangerously closely, and will also be subject to curb face, gutter seam and debris hazards.



Often a motorist will straddle the lane line with their wheel tracks to pass a bicyclist engaged in edge behavior, instead of making a full lane change to pass. We call this a "straddle pass", and it is not as safe for the bicyclist as a full lane change pass.

Forcing motorists by law to make straddle passes of edge bicyclists to give three feet of space, does not produce the same passing margin as when bicyclists control lanes. Motorists often misjudge passing distance and give less then 3 feet, or try to squeeze by more closely when there is traffic in the adjacent lane (see next). This is why FTR laws must be repealed to encourage bicyclists to control lanes and motorists to change lanes to pass.

Bicyclist specific Far To Right (FTR) laws encourage this edge behavior.

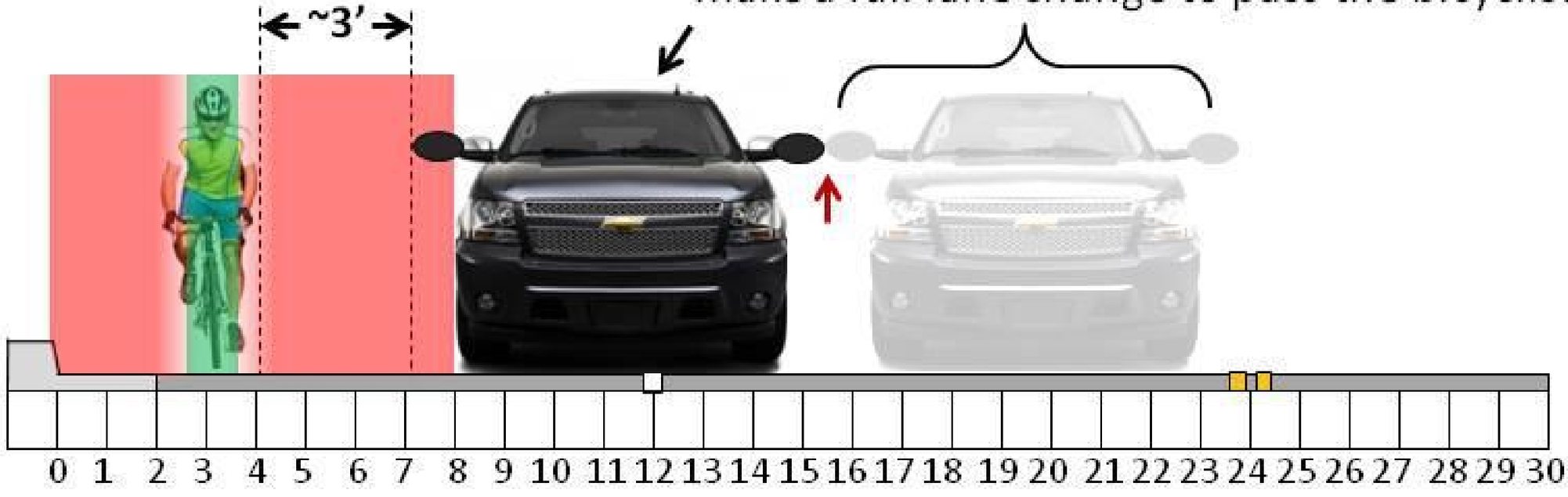
Gutter

Edge Bicyclist is in both hazard zones

Curb

Effective Lane
~1’ wide

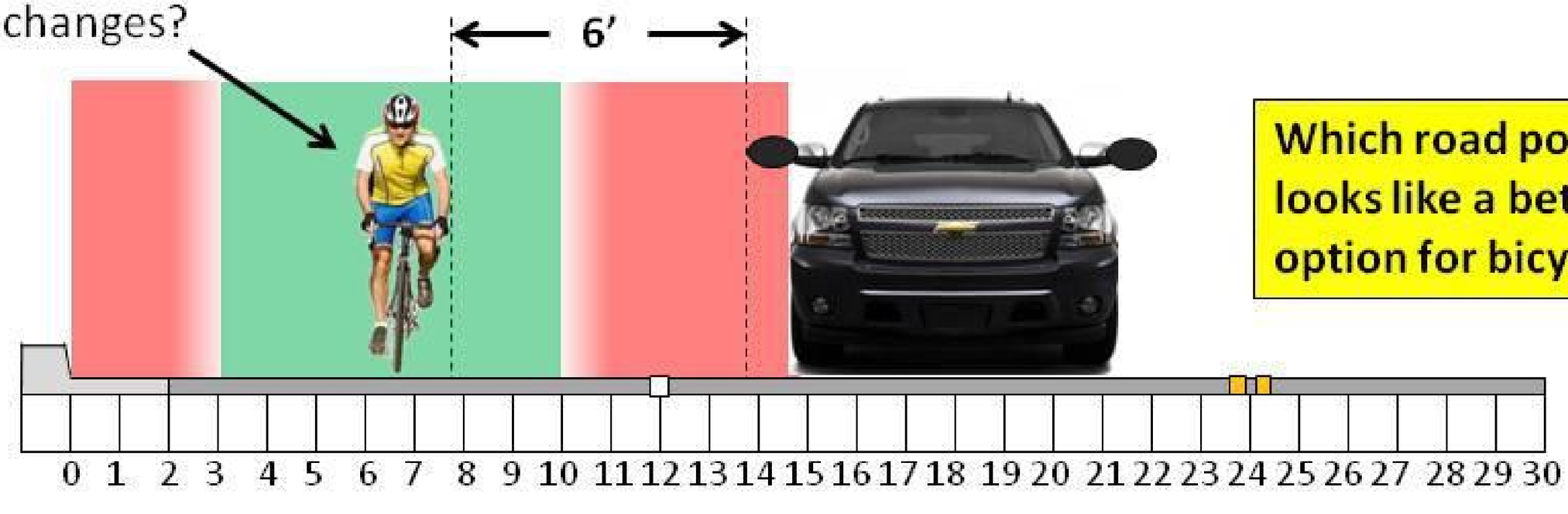
There isn’t enough room for another car to safely travel in the remainder of this lane, so why not make a full lane change to pass the bicyclist?



Straddle Pass vs Full Lane Change Pass

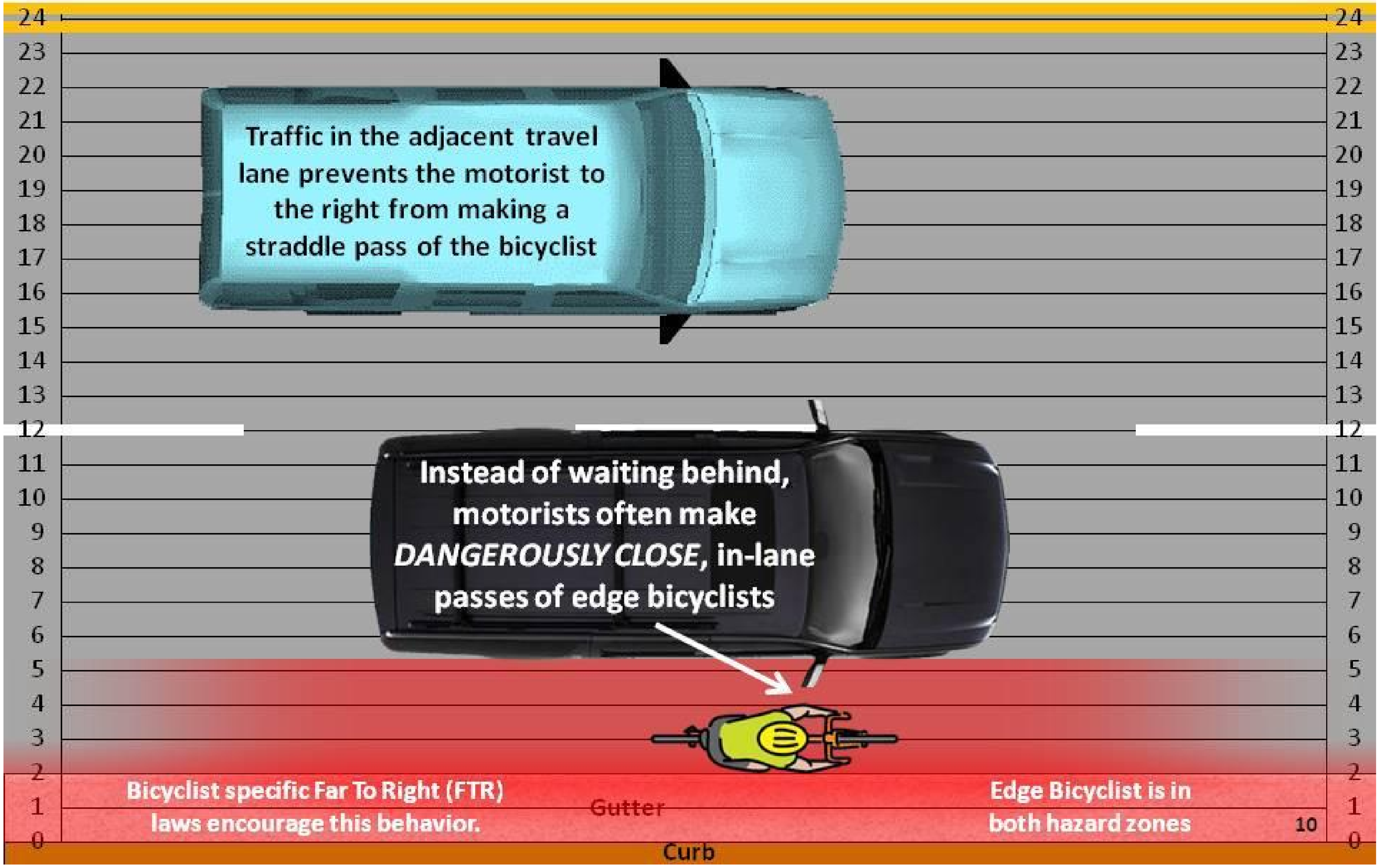
Why not control the lane to help motorists make full lane changes?

Effective Lane
Approx 7’ wide



Which road position looks like a better option for bicyclists?

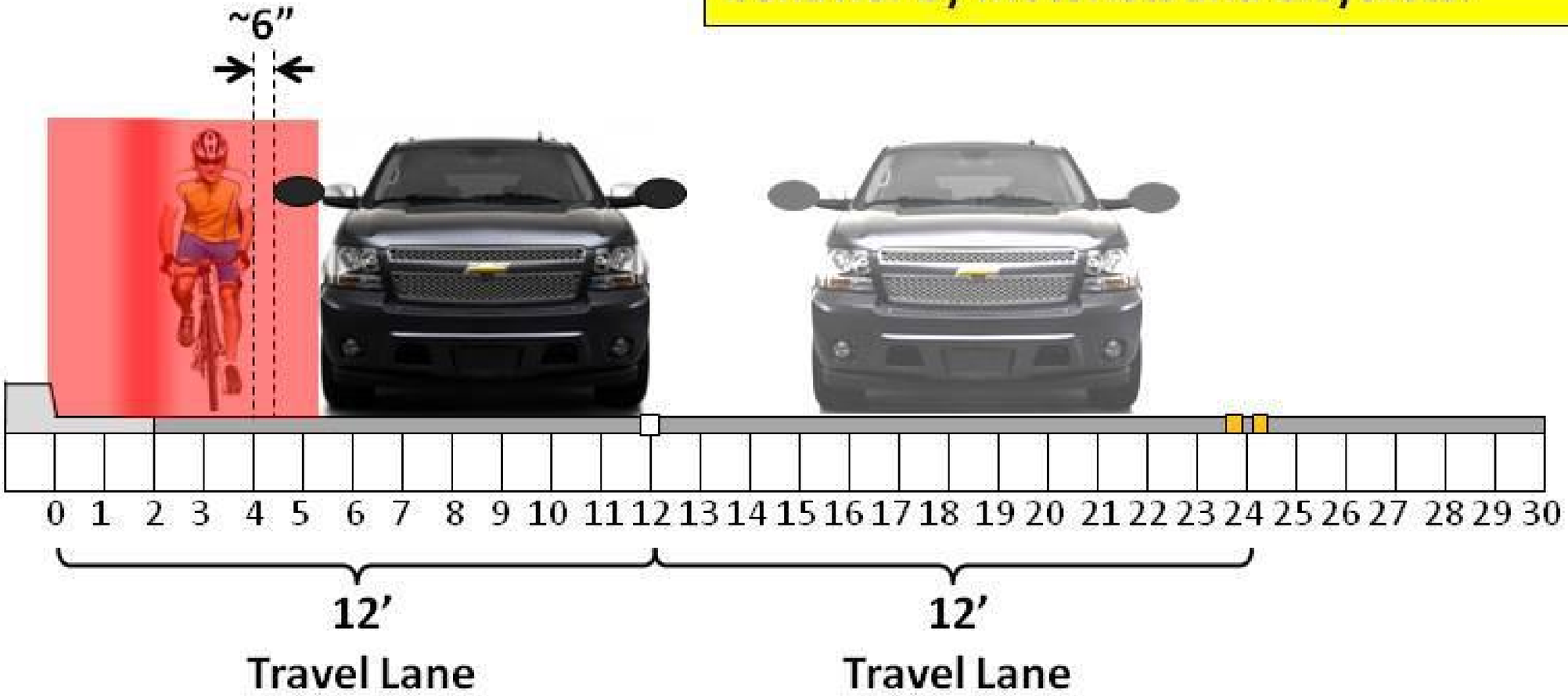
When traffic is in the adjacent lane, a motorist overtaking a bicyclist cannot make a straddle pass, and will often squeeze by within the same lane where the bicyclist is engaging in edge behavior. This leads to dangerously close, in-lane passes.



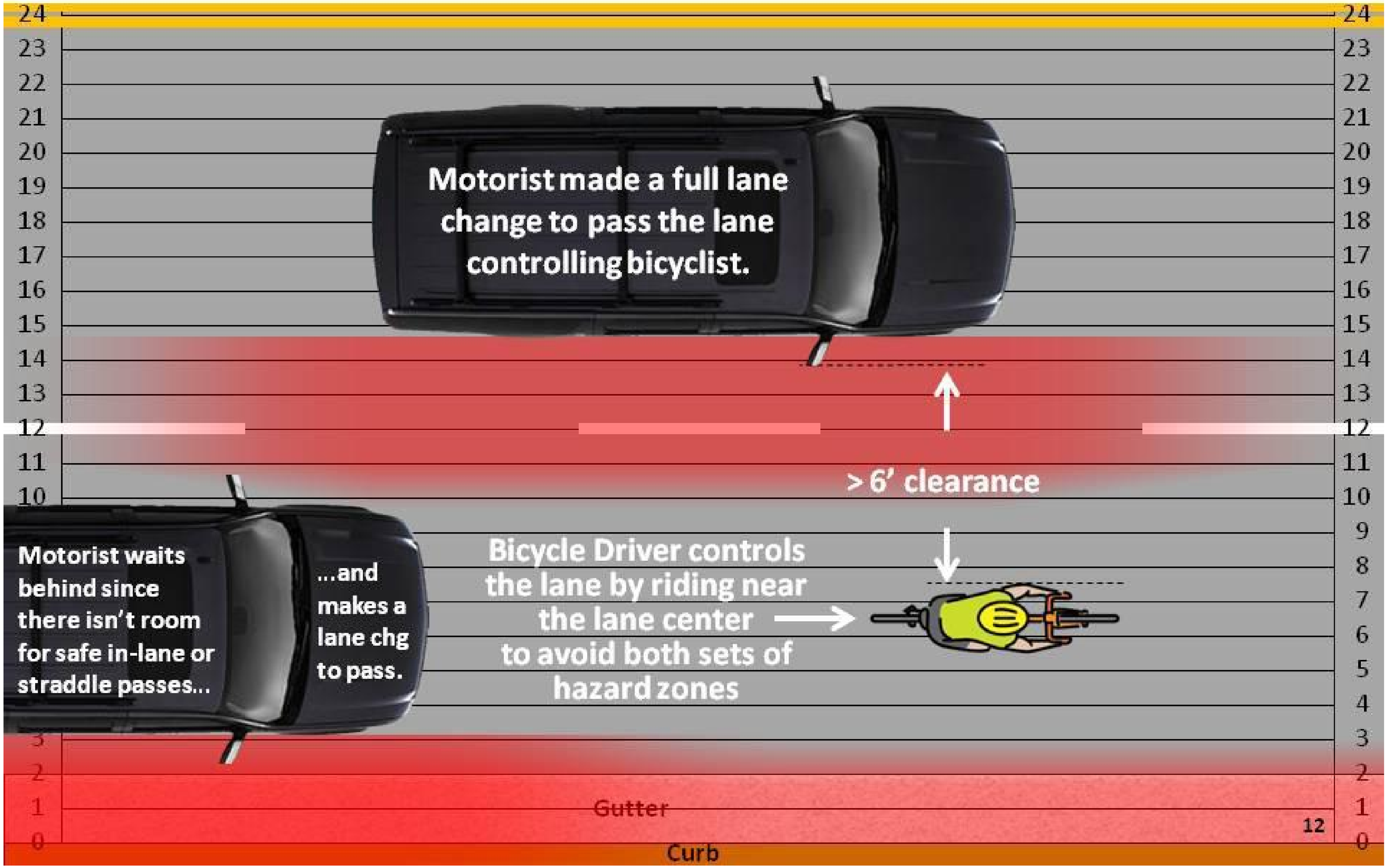
When traffic is in the adjacent lane, a motorist overtaking a bicyclist cannot make a straddle pass, and will often squeeze by within the same lane where the bicyclist is engaging in edge behavior. This leads to ***DANGEROUSLY CLOSE***, in-lane passes as can be seen in this cross-section view.

When bicyclists ride near the edge of a 12' wide lane, motorists will often pass with only inches margin. There should not be FTR laws that encourage this type of behavior by motorists and bicyclists.

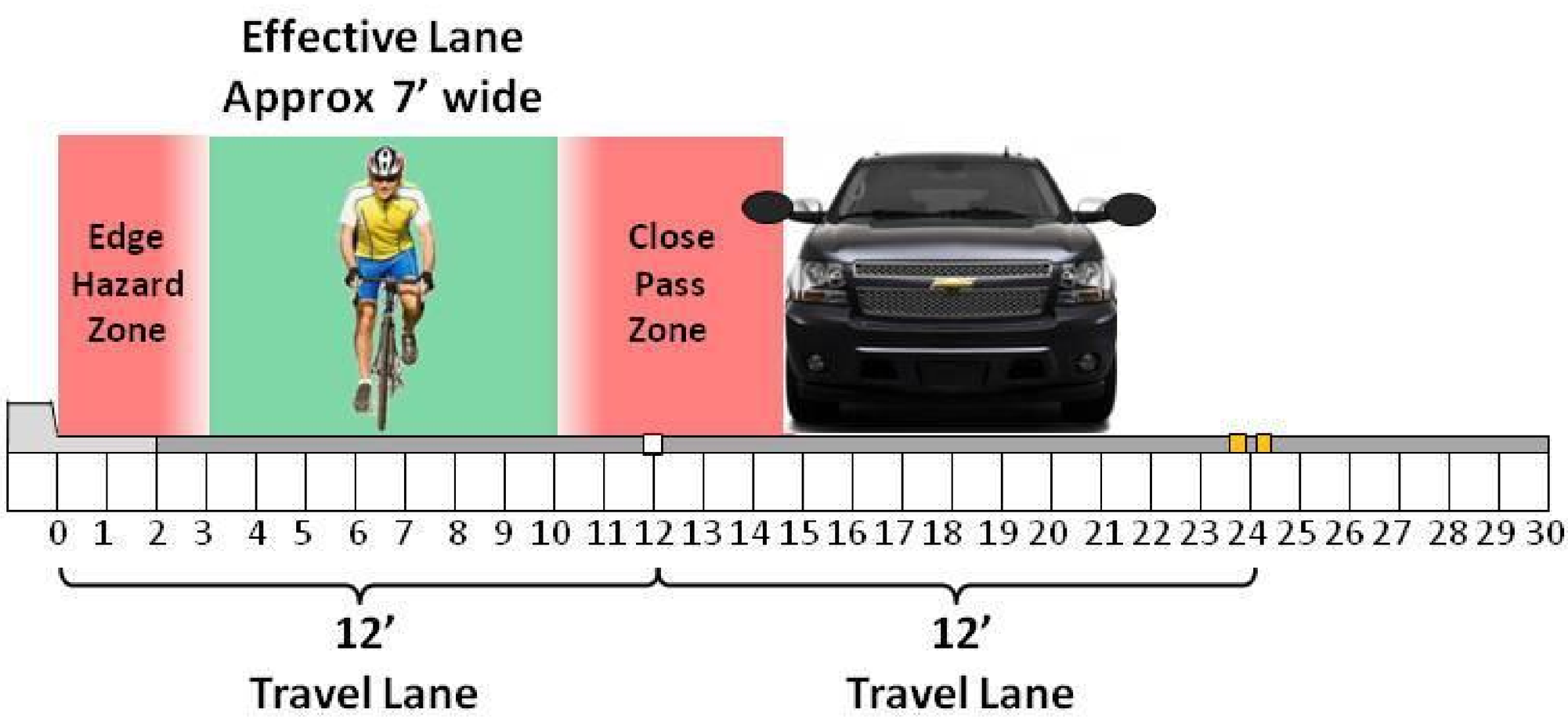
Effective Lane width is zero!



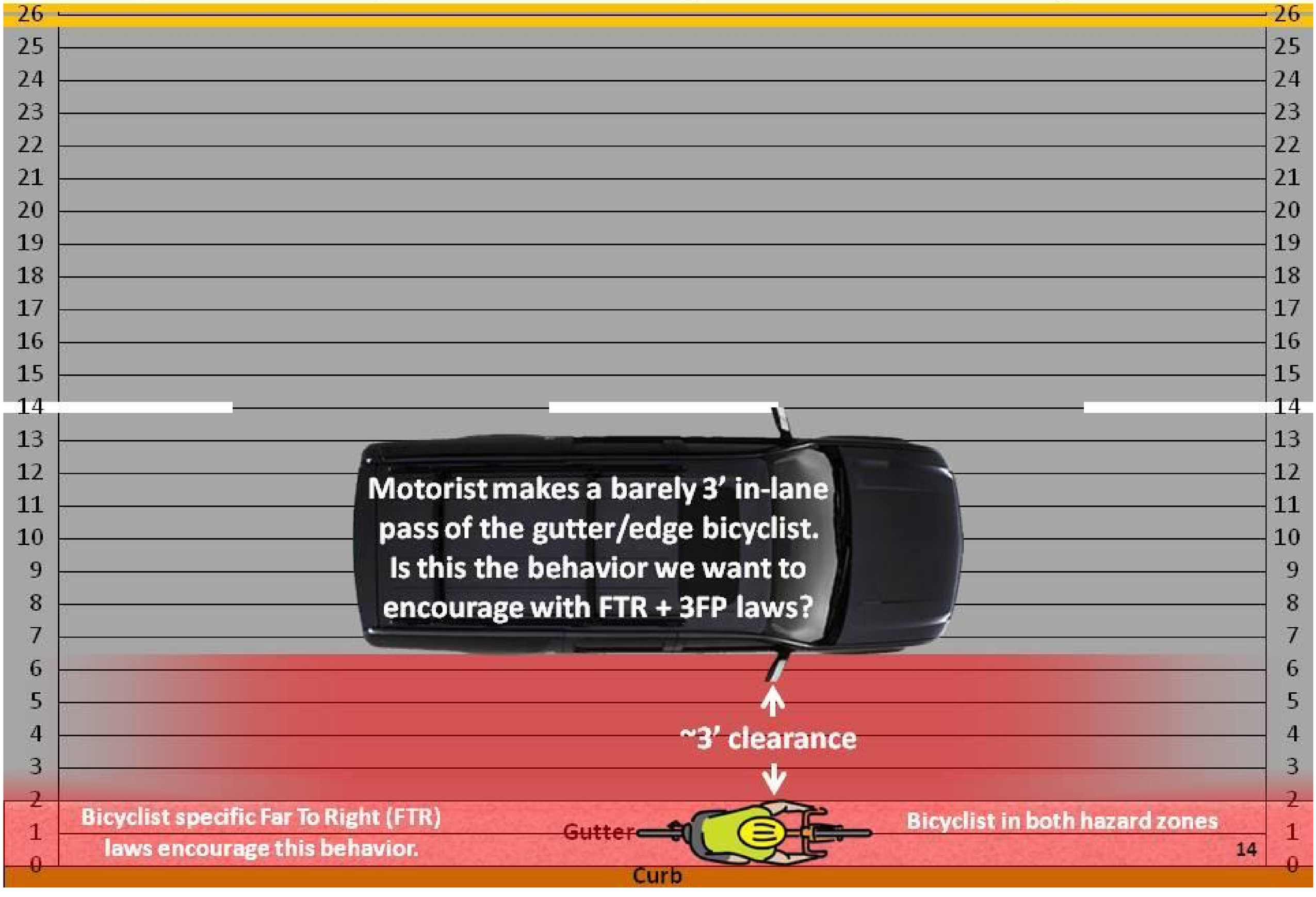
A bicyclist that controls the right hand lane is avoiding, by the maximum margin, both the close passing zone and the road edge hazard zone, and inhibits in-lane passing by overtaking motorists. This is why LCIs/CSIs teach cyclists to control narrow lanes.



A bicyclist moving more slowly than other traffic, who controls the right hand lane, is avoiding, by the maximum margin on either side, both the close passing zone and the road edge hazard zone, and inhibits in-lane passing by overtaking motorists. This is why LCIs/CSIs teach cyclists to control narrow lanes. In this cross-section view it is easy to see that the bicyclist is far from both hazard zones.

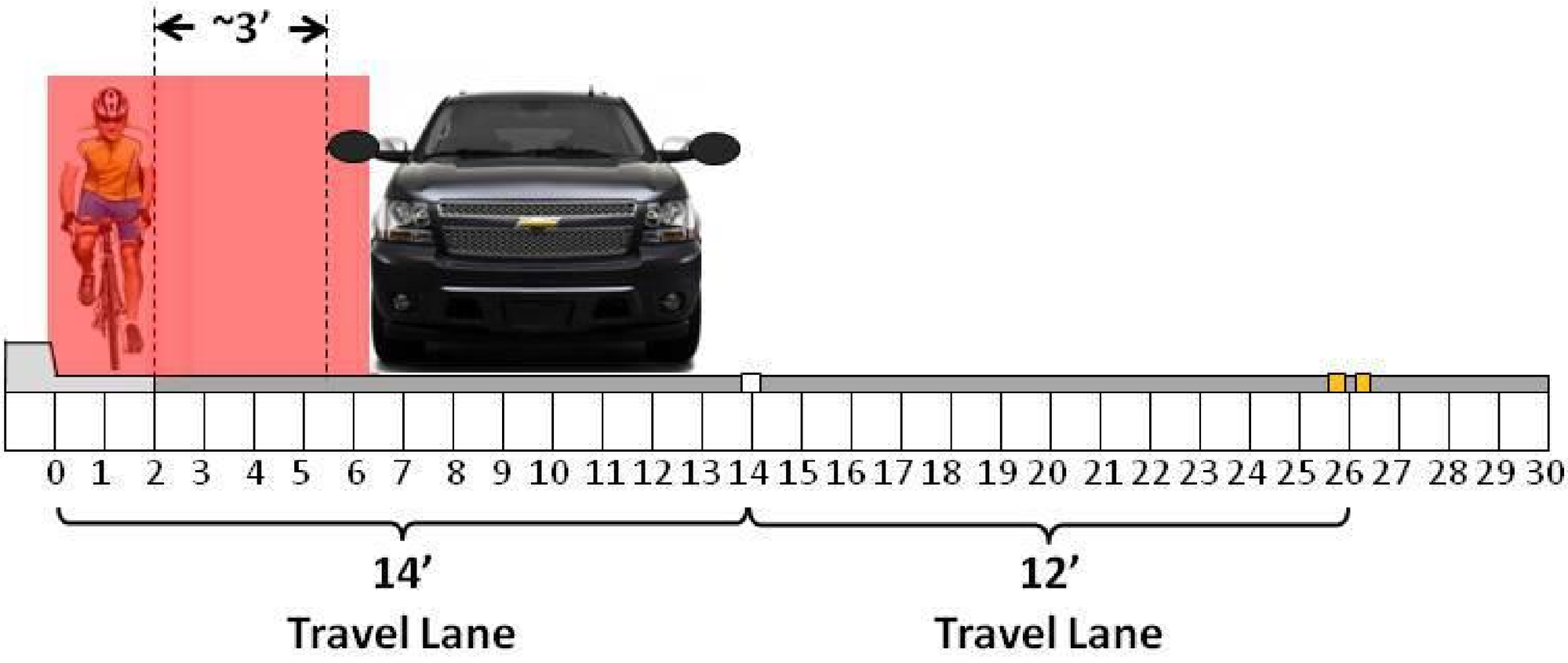


Even in a 14’ wide lane, a bicyclist riding in the gutter to avoid the close passing zone of trucks, SUVs and vans, must take on the edge hazards. This is not a good choice.

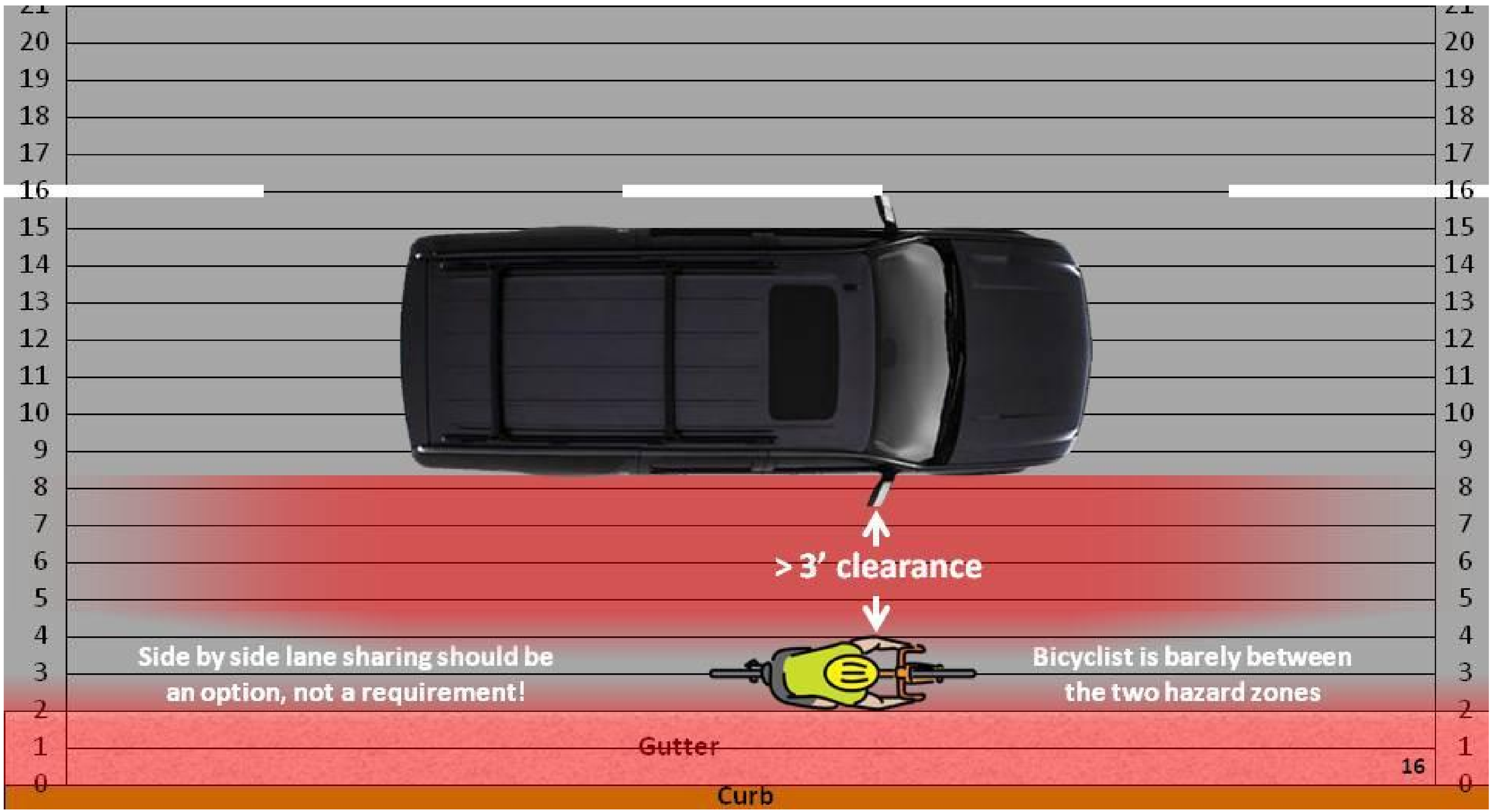


Even in a 14’ wide lane, a bicyclist riding in the gutter to avoid the close passing zone of trucks, SUVs and vans, must take on the edge hazards. This is not a good choice, yet many police and transportation professionals, even some advocates, think it’s acceptable for bicyclists to edge ride so motorists can give them 3 feet of passing clearance while making in-lane passes.

Effective Lane width is zero!



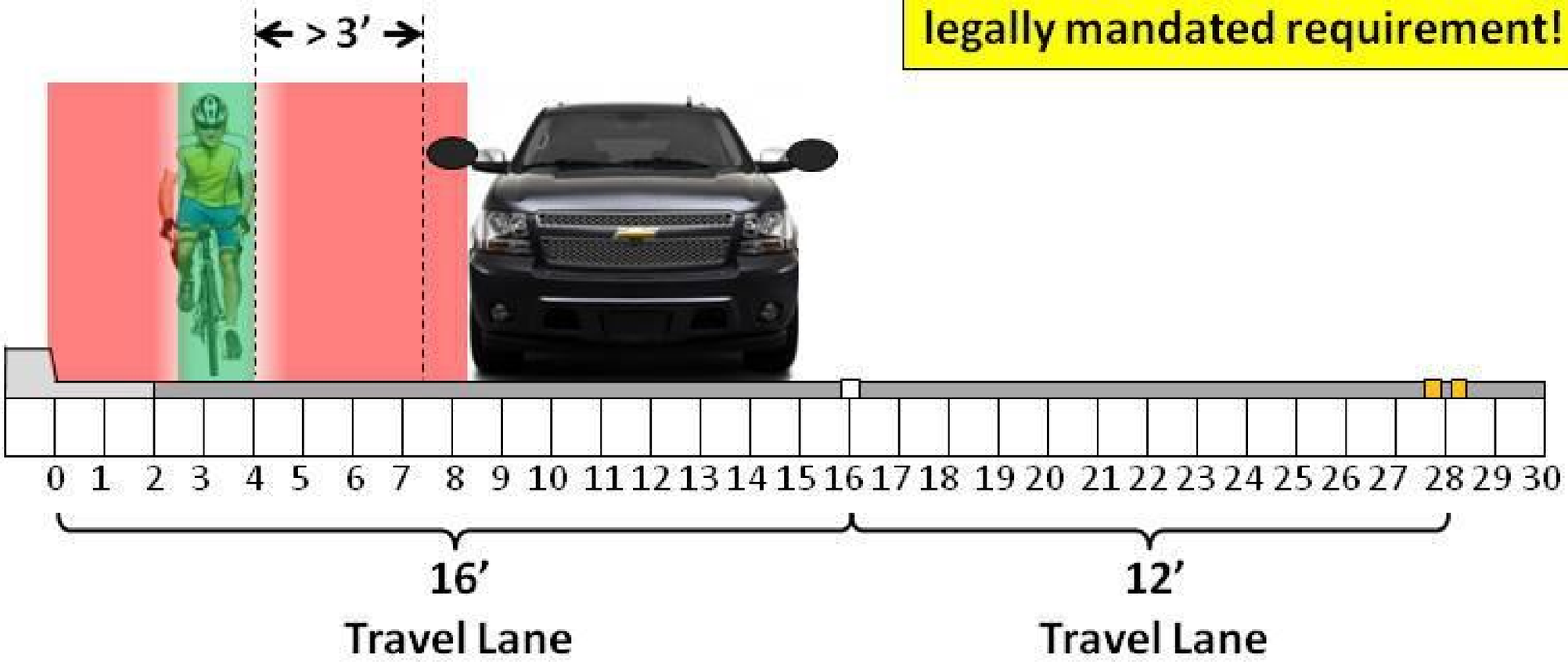
When the lane is 16’ wide, a bicyclist riding can just barely avoid the close passing zone of trucks, SUVs and vans, as well as the edge hazards. This is a very narrow zone.



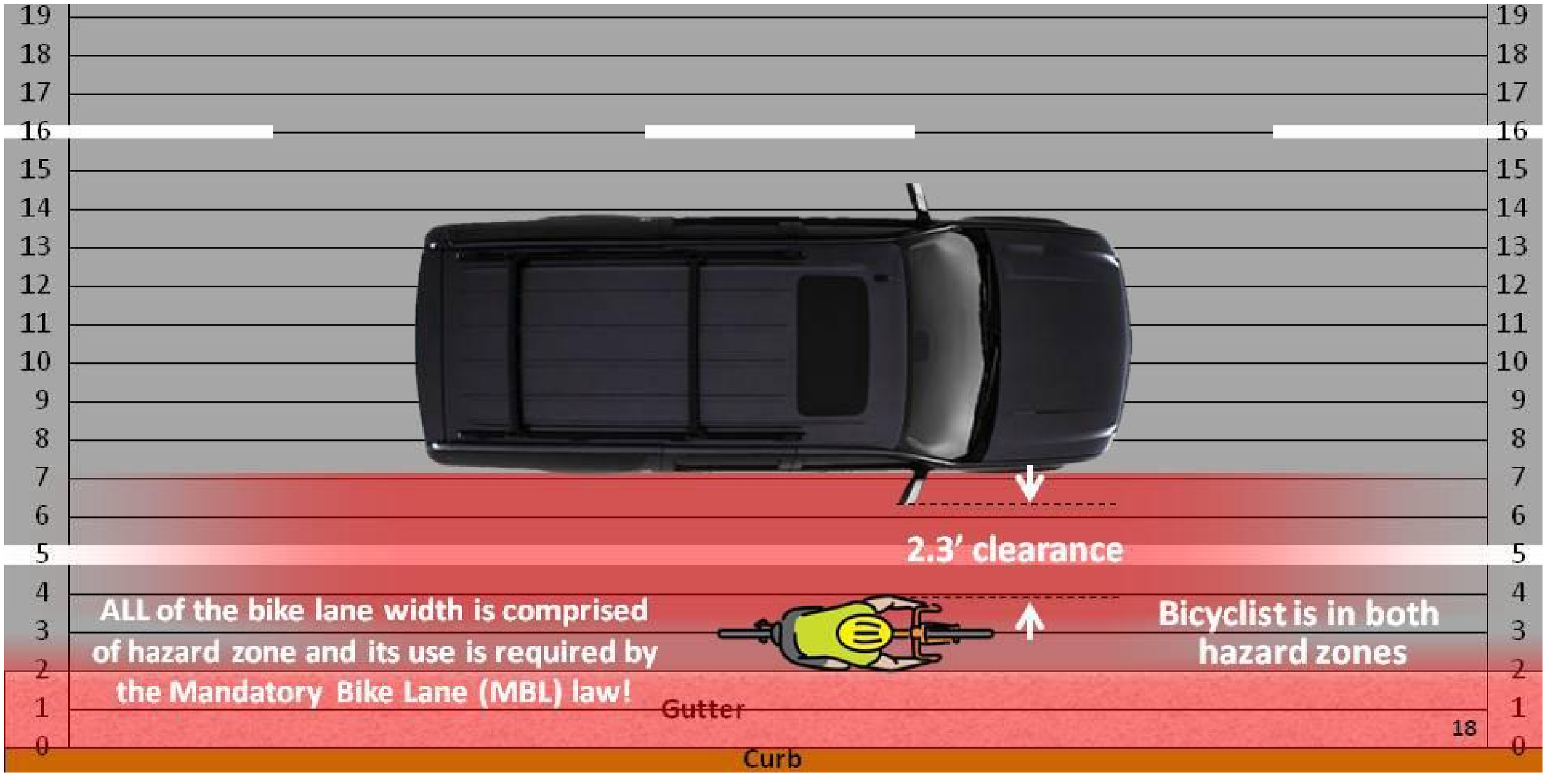
When the lane is 16’ wide, a bicyclist riding can just barely avoid the close passing zone of trucks, SUVs and vans, as well as the edge hazards. This is a very narrow zone and not very comfortable.

Effective Lane is < 2’ wide

Side by side lane sharing should be an option for bicyclists, not a legally mandated requirement!

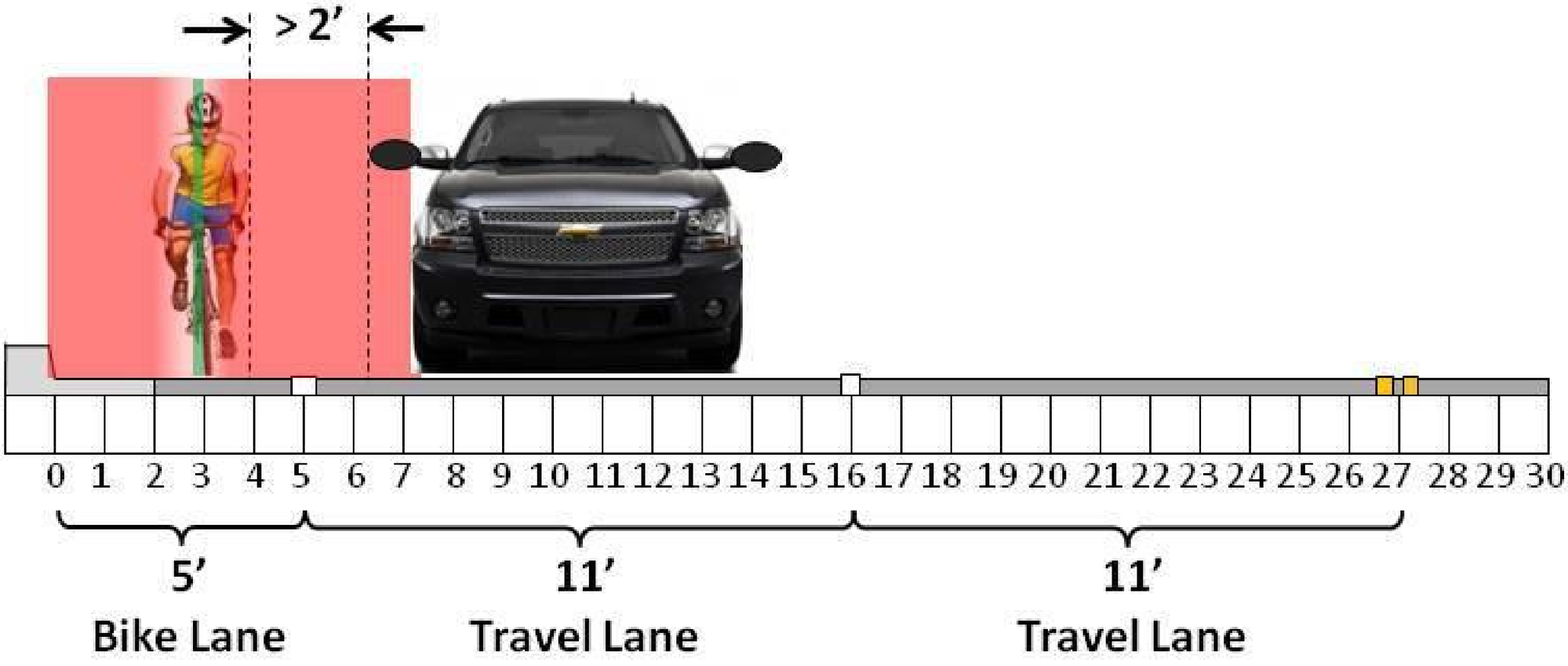


With that same 16’ of available space, an 11’ travel lane can be striped adjacent to a minimum standard 5’ wide bike lane. The cyclist has to choose either the close passing zone of trucks, SUVs and vans, or the edge hazards. Is this a good choice?

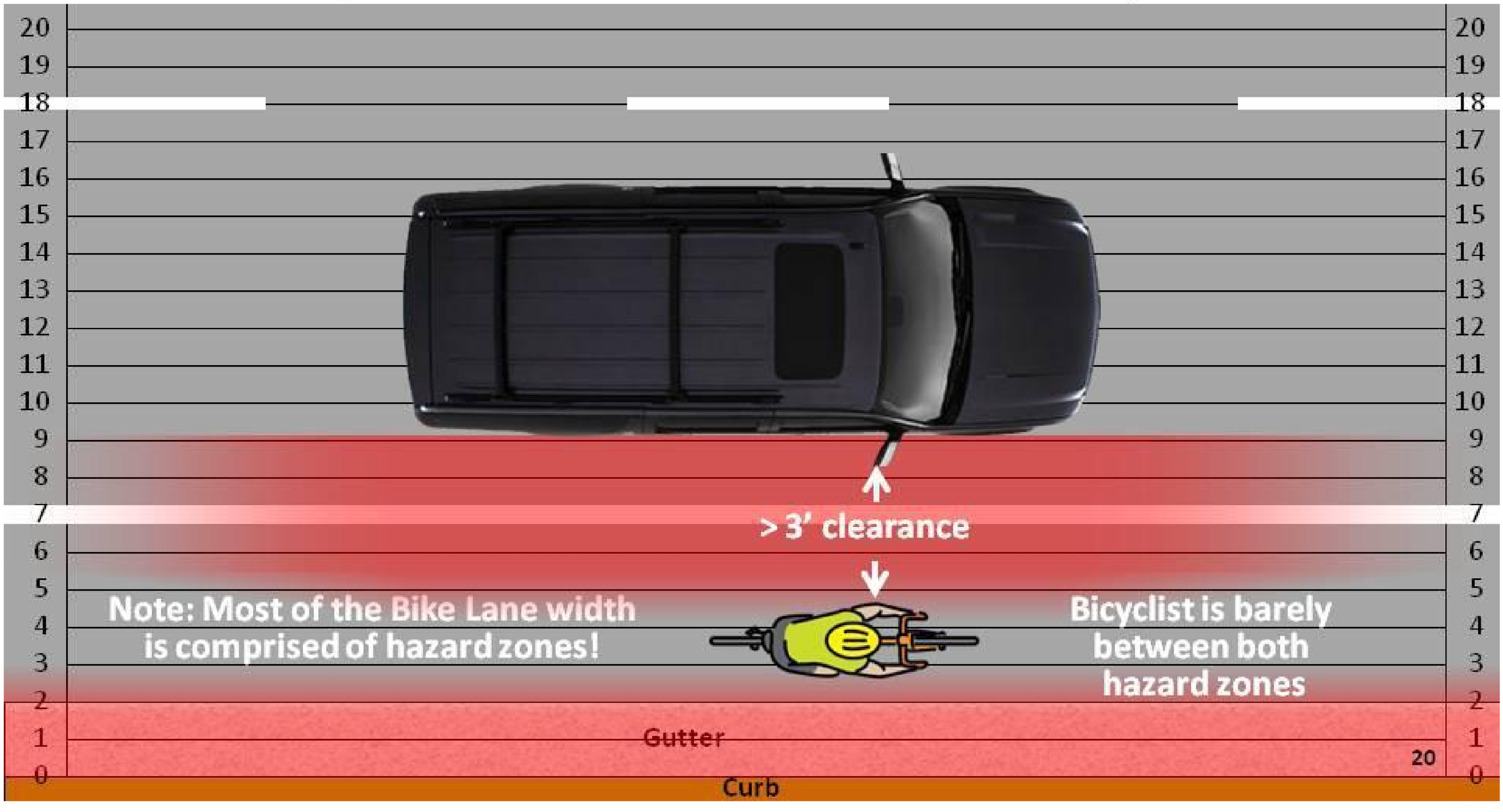


With that same 16’ of available space, an 11’ travel lane can be striped adjacent to a minimum standard 5’ wide bike lane. The cyclist has to choose either the close passing zone of trucks, SUVs and vans, or the edge hazards. Is this a good choice for bicyclists?

Effective Lane
is just inches wide

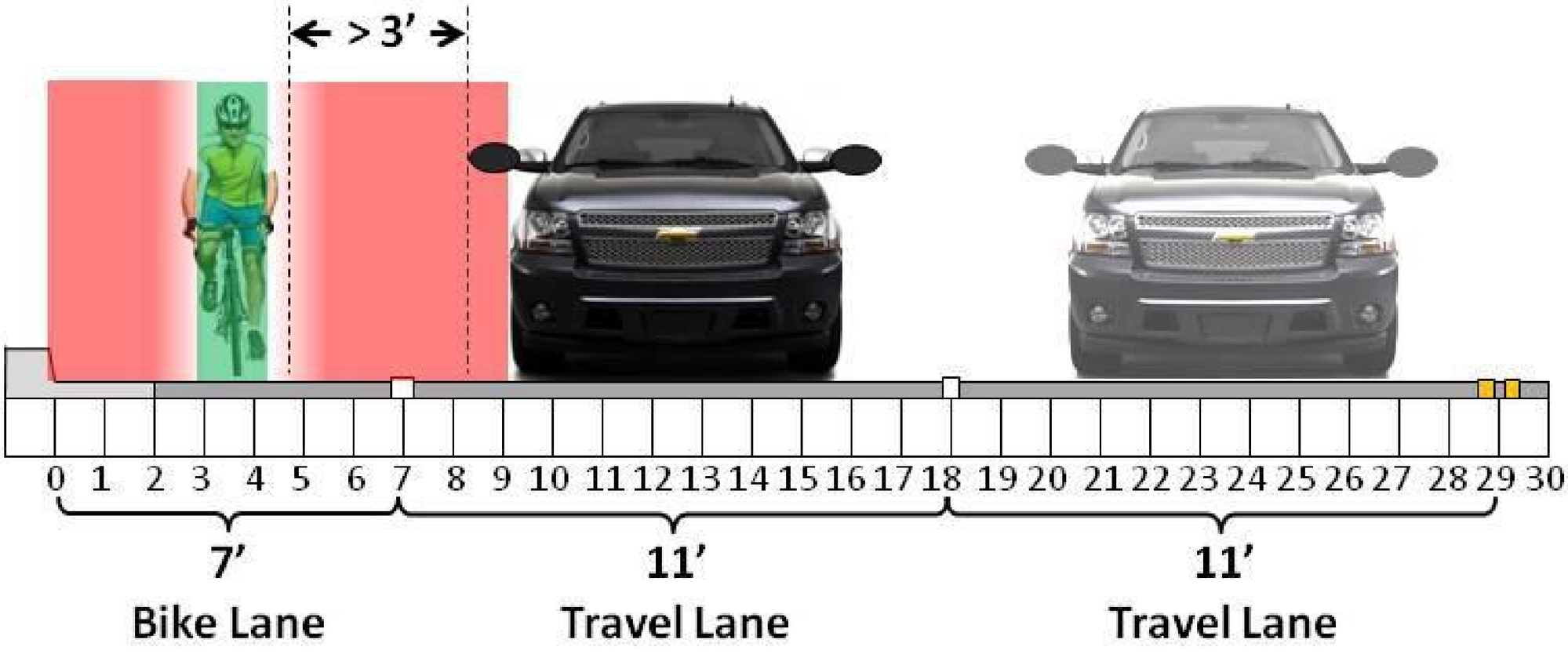


With 18’ of width, an 11’ travel lane can be striped adjacent to now 7’ wide bike lane. Here the cyclist has just enough room to avoid both the close passing zone of trucks, SUVs and vans, and the edge hazards. It takes a substantial amount of road space to create comfortable, hazard-free bike lanes as we will show on the plan view next slide.

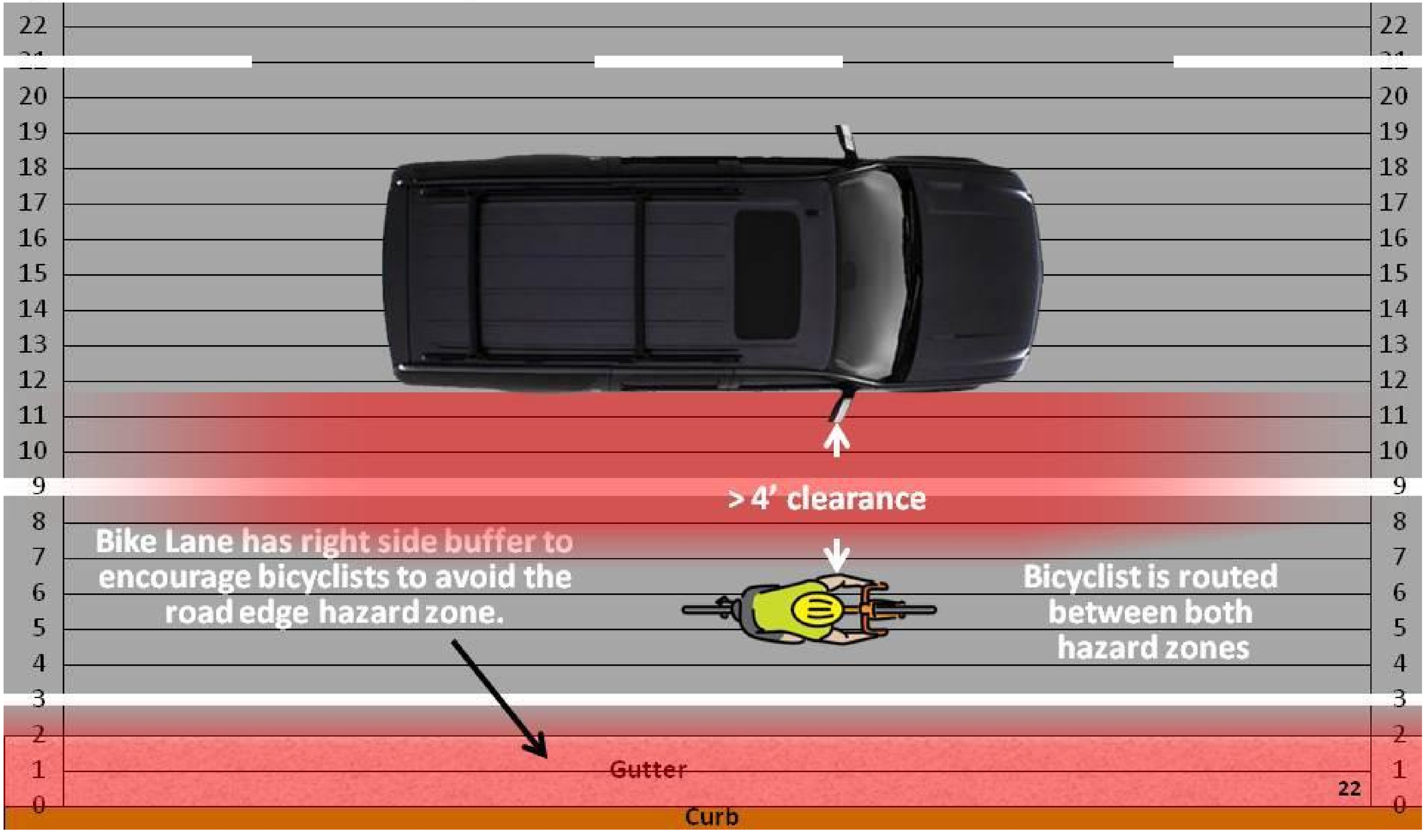


With 18’ of width, an 11’ travel lane can be striped adjacent to now 7’ wide bike lane. Here the cyclist has just enough room to avoid both the close passing zone of trucks, SUVs and vans, and the edge hazards. It takes a substantial amount of road space to create comfortable, hazard-free bike lanes as we will show on the next slide.

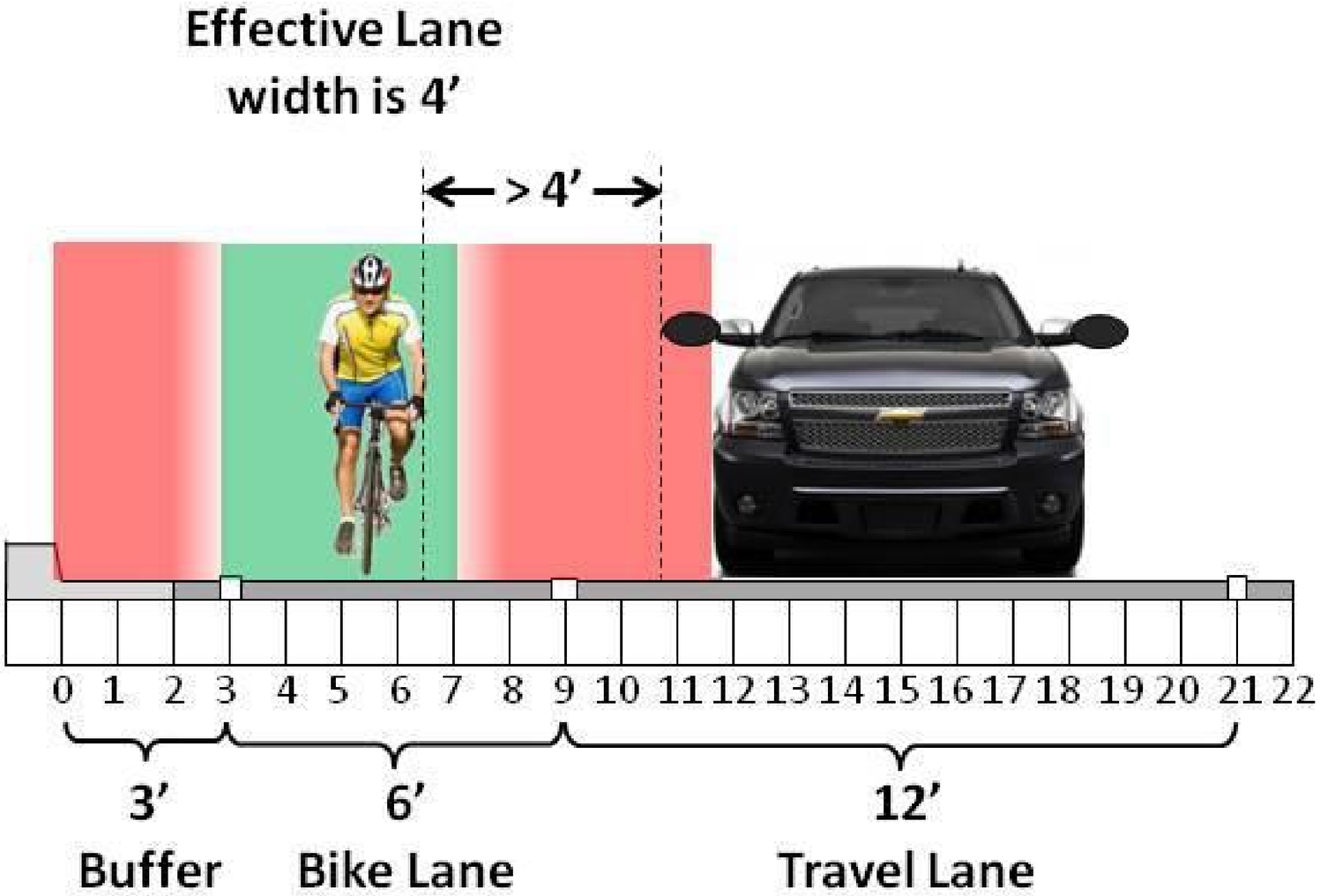
Effective Lane width is just over 1’ wide



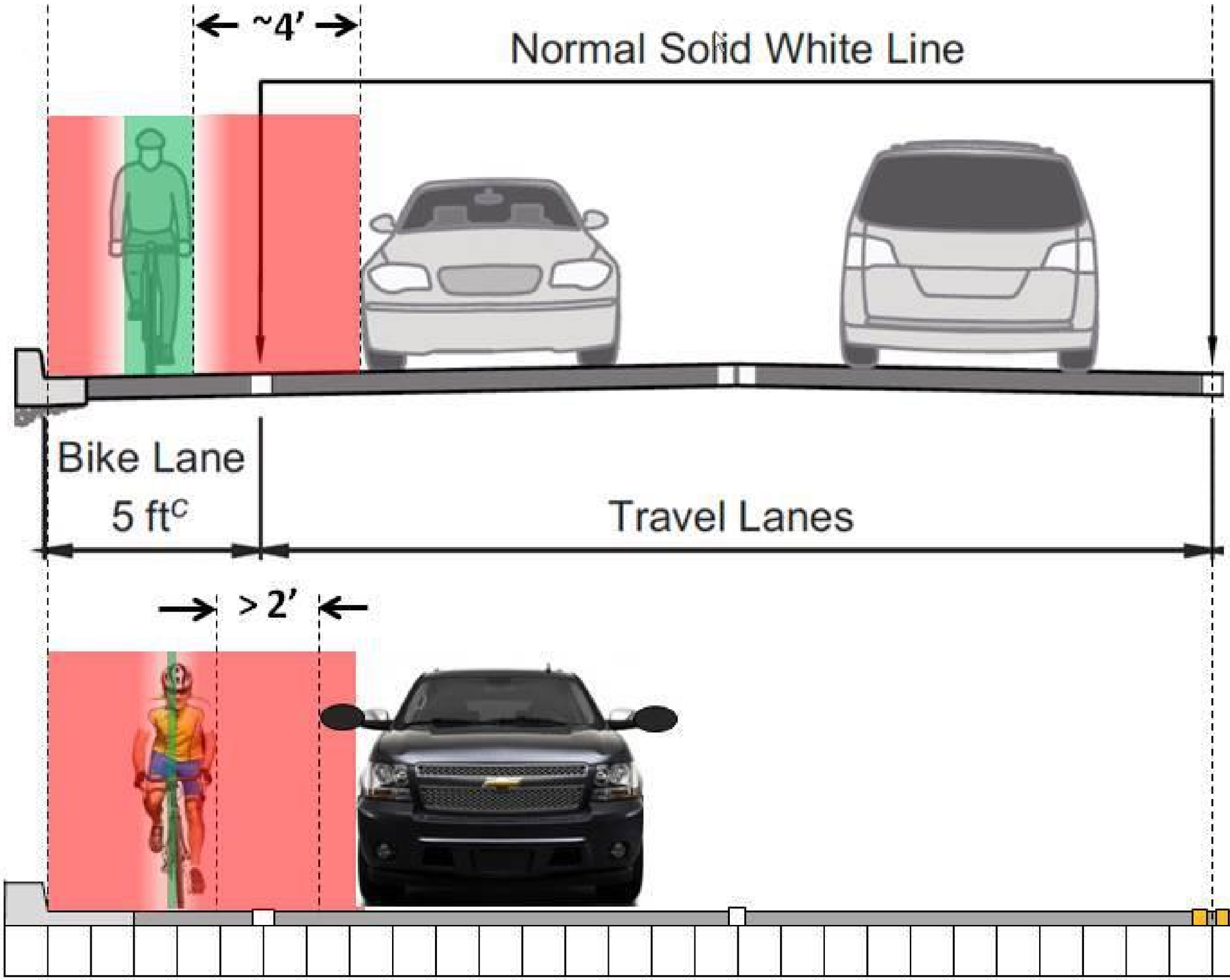
With 21’ of width, a 12’ travel lane can be striped adjacent to now 9’ wide, right side buffered bike lane. Here the cyclist has ample enough room to avoid both the close passing zone of trucks, SUVs and vans, while the edge hazard is to the right of and completely outside the bike lane. It really does take a substantial amount of road space to create comfortable, hazard-free bike lanes as this slide demonstrates.



With 21’ of width, a 12’ travel lane can be striped adjacent to now 9’ wide, right side buffered bike lane. Here the cyclist has ample enough room to avoid both the close passing zone of trucks, SUVs and vans, while the edge hazard is to the right of and completely outside the bike lane. A substantial amount of road width is required to create comfortable, hazard-free bike lanes.



Comparison to AASHTO Guide Cross-Section



In the AASHTO guide, the gutter used in the picture is only 1' wide and the motor vehicle is narrower than a SUV, and the mirror width is not shown, so it allows the cyclist to be placed closer to the curb and also have more mirror clearance. This adds about 2' to the effective lane width. Even with these helpful features, please note that the effective lane is still not wide enough for the body of the cyclist!

About the drawing scale (1’ street = 0.25” slide):
Please note that we used scale Chevy Suburban images/graphics as the representative vehicles for determining road space. We also used a 2’ wide bicyclist in for both the plan views and cross-sections.

The AASHTO guide specifies A 40” wide box to define the operating space of a bicyclist. Thus if the effective lane is narrower than 40”, then an AASHTO design bicyclist will not fit entirely within the box!

Drawing accuracy is between 1” to 2”.