

A Proposal for Making the Wabasso Bridge (CR510) Safer for People on Bicycles



The Problem

County Road 510 crosses the Indian River Lagoon using a series of three bridges. This document addresses safety concerns relating to the easternmost bridge which crosses over the Intracoastal Waterway (“ICW”). For purposes of this document, that bridge is referred to as the “Bridge.”

Although the Bridge appears to be in good repair, it is an old structure built to old standards. According to the Florida Department of Transportation (“FDOT”), it was completed in 1970.¹ Apparently, at the time the Bridge was built, little consideration was given to the safety of people riding bicycles across it.

The bridge consists of two travel lanes, each approximately eleven feet wide, with one lane in each direction. Each travel lane is bordered on the outside by a paved shoulder that is approximately 4.5 feet wide. At the edge of the shoulder is a concrete wall, approximately 3 feet high. There is no designated bike lane and no sidewalk. The speed limit on the Bridge is 35 mph. The center of the Bridge is approximately 65 feet off the water.

Although the Bridge is located on a county road, FDOT has jurisdiction over the maintenance of the Bridge.

Most people riding bicycles across the Bridge currently ride in the paved shoulder, which is too narrow to meet the current FDOT standard for a bicycle lane. The current FDOT standard, at least for new construction or reconstruction, prescribes a 7 foot bike lane with a 20 inch buffer between the rideable portion of the lane and the adjacent traffic lane.² It is possible to

¹ See <http://www.dot.state.fl.us/statemaintenanceoffice/CBR/Florida%20Bridge%20Information%2001-07-08.pdf>

² The 7 foot standard for bicycle lanes applies in and adjacent to “urban areas.” See FDOT Plans Preparation Manual, Volume 1, § 8.4.1 (January 1, 2015). FDOT classifies the entire Bridge as being in an Urban Area. FDOT Urban Area Map for Indian River, St. Lucie & Martin Counties (<http://www.dot.state.fl.us/rddesign/PPMManual/BM/IndianRiver.pdf>).

ride safely in a narrower bike lane. With a little experience, a person could ride a bicycle within a 4.5 foot shoulder, although many would experience some degree of discomfort being so close to the adjacent traffic lane.

The side walls on the Bridge make it even less comfortable for people on bicycles. The existing paved shoulders butt up directly against concrete side walls as shown in the photo above.

The concrete side walls are about 3 feet high. The average bicycle seat is between 2.5 to 3 feet high. Accordingly, if someone riding a bicycle right next to the concrete wall falls (or is knocked off) his or her bicycle in the direction of the concrete wall, he or she could easily go over the side of Bridge. Given the height of the Bridge, going over the side would most likely result in death or critical injuries.

Given these significant safety concerns with riding bicycles in the existing shoulder, one might think that it would be better for people on bicycles to ride in the travel lane rather than the shoulder. Florida law permits people on bicycles to ride in the travel lane when there is no designated bike lane. However, Florida law (and common sense) requires that motor vehicles keep at least 3 feet away from a person riding a bicycle. Because the travel lanes on the Bridge are relatively narrow, a motor vehicle could not pass a bicycle riding in the travel lane unless the motor vehicle crossed the double yellow line separating the east and west travel lanes.

There is some debate about whether Florida law permits a motor vehicle to cross a double yellow line in order to safely pass a person on a bicycle.³ However, even if one interprets Florida law to permit a motor vehicle to cross a double yellow line to pass a bicycle, presumably a motor vehicle following behind a bicycle riding up the Bridge would not be able to safely cross the double yellow line until such time as the motor vehicle has reached the top of the Bridge and is able to confirm that there is no oncoming traffic. Most people riding a bicycle up the Bridge would struggle to maintain a 15 mph speed. That means that a line of cars could back up behind a bicycle rider as he or she rode up the bridge. Such a situation would be disconcerting for most people on a bicycle and frustrating for most motorists who had planned to travel over the bridge at 35 mph.

Consequently, encouraging people on bicycles to routinely “take the lane” when crossing the Bridge is probably not a good solution to the problem of finding a way for people on bicycles to safely cross the Bridge.

³ Florida law permits a motor vehicle to cross a double yellow line in order to safely pass an “obstruction.” It is unclear, however, whether a bicycle traveling well under the posted speed limit would be considered an “obstruction.” The Florida Bicycle Association (“FBA”) takes the position that the bicycle in such a situation is an obstruction and there the motor vehicle can cross the double yellow line to pass the bicycle. However, Deputy Doug Mackenzie, who serves as the Indian River County Sheriff’s Department contact person on issues relating to cycling safety, takes the position that a person riding a bicycle in a travel lane is not an obstruction even if the person is riding significantly slower than the speed limit.

Long Term Solutions

Obviously, the best solution would be to reconstruct the Bridge to allow space for the bike lanes that comply with current FDOT standards. However, assuming that the Bridge is structurally sound and able to handle the current volume of traffic, reconstructing the Bridge is probably not economically feasible in the short term.

Phil Matson, the Director of the Indian River County Metropolitan Planning Organization has raised the question of whether it might be possible to “cantilever” a bicycle lane onto each side of the existing bridge. While such an idea is intriguing, even if feasible from an engineering and economic standpoint, such a project would take a long time to plan, design and build.

FDOT should strive to find a long-term solution that truly makes the Bridge a “Complete Street.”⁴ In the meantime, however, reasonable short-term changes should be made to improve the safety of the existing Bridge.

A Reasonable Short Term Solution: Convert the Existing Shoulders into Bike Lanes with Additional Protections

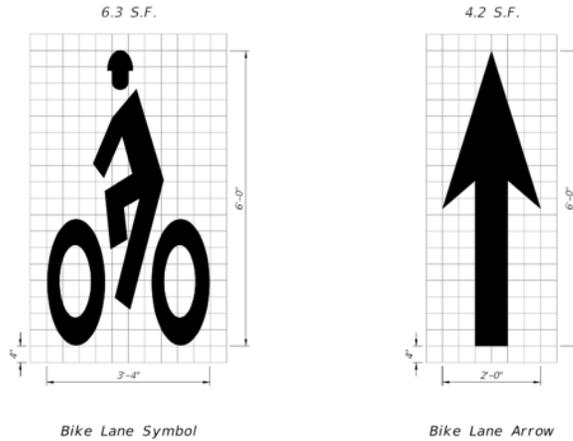
No short-term “solution” will make the Bridge as safe as most people would like. However, the Bridge could be made somewhat, perhaps substantially, safer at a relatively low cost. This would involve four changes to the existing bridge.

First, a guardrail should be installed along the top of the existing concrete walls on each side of the Bridge. The rail would need to be high enough to prevent a person who fell (or was knocked off) his or her bicycle from going over the side of the Bridge. A good example of such a rail may be found on the recently reconstructed US 1 bridge over the railroad tracks at the Indian River County/St. Lucie County line. Those rails are shown in the photos below. Given the narrow width of the bike lane, it may be advisable to erect the guard rail outside of the concrete wall (leaving some additional space) so that bicycles that get too close to the wall do not have the handlebars caught by the rail.



⁴ The term “Complete Streets” generally refer to a roadway that is safe for all users, including motor vehicle drivers, people on bicycles and pedestrians. See FDOT Complete Street Policy at <http://www.dot.state.fl.us/rddesign/CSI/000-625-017-a.pdf>.

Second, the existing shoulder should be converted to a designated bike lane by the use of FDOT approved lane markings (and other bicycle lane signage as appropriate) as shown in the line drawings below.⁵



Designating the shoulder as a bike lane would inform people riding bicycles that they should be in the bicycle lane (as required under Florida law). It would also alert motorists that bicycles may be riding on the bridge.

Third, in order to minimize the possibility of motor vehicles “drifting” into the bicycle lane, raised reflective pavement markers (sometimes called “RPMs”) should be installed between the designated bike lanes and the travel lanes. A good example of this application of RPMs can be found on the 17th Street Bridge in Vero Beach where RPMs were recently installed for exactly this purpose.

Finally, in order to minimize potential motor vehicle/bicycle conflicts, “3 Foot Passing” signs, as shown below should be installed on either side of the bridge in place of (or in addition to) the existing “Share the Road” signs.



⁵ FDOT 2015 Design Standard - 17347 - Bicycle Markings

Conclusion

It is currently dangerous for people to ride bicycles across the Bridge due to the narrow travel lanes and narrow, unprotected shoulder. In the long term, the bridge should be reconstructed as a “complete street” that is safe for all users. In short term, the Bridge could be made safer for people on bicycles by (i) adding protective rails to the concrete walls along the outside edge of the existing shoulder, (ii) converting the existing shoulder to a designated bike lane, (iii) adding raised pavement markers between the travel lanes and the designated bike lanes and (iv) installing “3 foot passing” signs. These changes should be made as soon as possible in order to avoid another tragedy such as the death of the young man who was recently hit by a car on the 17th Street Bridge in Vero Beach and knocked over the side of the bridge.

Prepared By: Vero Cycling, Inc., August 25, 2015

Contact: Hugh Aaron
Vero Cycling, Inc.
Advocacy Director (Volunteer)
hugh@theaarons.com
804-690-9720 cell