Bicycle Level of Traffic Stress

August 2021

INTRODUCTION

The Wichita Area Metropolitan Planning Organization (WAMPO) has developed a Bicycle Level of Traffic Stress (BLTS) score for each city in the WAMPO region. The scores range from 1 to 4, with the smaller number representing a lower amount of stress on the bicyclist. The purpose of the map is to better show where bicyclists may have more trouble on the road and how bicyclists and traffic are intertwined. The resulting map can be found on BLTS (earthengine.app).

The BLTS score for each of the road segments was calculated based on traffic speed, Average Annual Daily Traffic (AADT), functional road classifications, and whether or not the road has a protected bike lane, defined as any bike lane that is separated or protected from the road lane by an object, ledge, etc. This does not include painted lines.

BICYCLE LEVEL OF TRAFFIC STRESS

Defining BLTS

The methodology of creating the BLTS scores were adapted from what other MPOs around the United States use. Bicycle stress levels are defined in the table below.

TABLE 1. DESCRIPTIONS OF THE BICYCLE LEVEL OF TRAFFIC STRESS

BLTS	Description
1	Comfortable for all, including children. Roadways are characterized by having a protected bike lane and/or little to no intermingling with vehicular traffic.
2	Tolerable by most adults. May have some turning conflicts but cyclists are mostly separated from traffic with a painted bike lane. Roadways may not be suitable for children.
3	Roadways have a higher volume of traffic compared to BLTS 2 roadways.
4	Tolerable by only the most experienced bicyclists

This methodology takes the limits and reliability of available data into consideration. The analysis of traffic stress uses a combination of data from city and state sources to determine Annual Average Daily Traffic, functional classifications, bicycle facilities, etc. In cases where Annual Average Daily Traffic is not available, functional classification is used in its place.

Some conflict factors are included as they make riding a bicycle more stressful due to increased traffic volumes and a greater potential for conflicts due to vehicle unpredictability. Some of the conflict factors include industrial and commercial zones, key bus routes, and pick-up/drop-off zones. If the criterion is met, the BLTS score is increased by one unit with a maximum score of 4. If multiple criteria are met, the score is still only increased by one unit. Due to changes in land uses along any given street, BLTS scores may not be consistent block to block.

TABLE 2. BICYCLE LEVEL OF TRAFFIC STRESS CRITERIA TABLE

			Posted Speed			Conflict Factors**	All Ages and Abilities Treatment		
Vehicle Volumes*			20	25	30+		Protected Bike Lane***	Shared Street	Neighborhood Greenway
<1,500	Bike Lane	No Parking	BLTS 1	BLTS 1	BLTS 2	Add 1 to score for a max score of 4	BLTS 1	BLTS 1	BLTS 1
		Parking	BLTS 1	BLTS 1	BLTS 3				
	No Bike Lane		BLTS 1	BLTS 2	BLTS 3				
1,500 - 3k	Bike Lane	No Parking	BLTS 2	BLTS 2	BLTS 2		BLTS 1	BLTS 1	BLTS 1
		Parking	BLTS 2	BLTS 2	BLTS 3				
	No Bike Lane		BLTS 2	BLTS 2	BLTS 3				
3k - 6k	Bike Lane	No Parking	BLTS 2	BLTS 2	BLTS 2		BLTS 1		
		Parking	BLTS 2	BLTS 2	BLTS 3				
	No Bike Lane		BLTS 3	BLTS 3	BLTS 4				
>6k	Bike Lane	No Parking	BLTS 3	BLTS 3	BLTS 3		BLTS 1		
		Parking	BLTS 3	BLTS 3	BLTS 4				
	No Bike Lane		BLTS 3	BLTS 4	BLTS 4				

*If the vehicle volumes are not available, use of functional classification may be used in place as such: <1,500 for local roads, 1,500-3k for collector roads, 3k-6k for arterial roads, >6k for interstates.

**If any conflict factors are present, only 1 unit is added to the BLTS score even if multiple factors are present. Conflict factors include industrial and commercial zones, key bus routes, and pick-up/drop-off zones.

***A protected bike lane is defined as a bike lane that is separated from traffic by some physical object, such as a ledge, cones, etc.

FIGURE 1: MAP OF BICYCLE LEVEL OF TRAFFIC STRESS
An interactive version can be found on the WAMPO website.

Bicycle Level of Traffic Stress