Statewide Bicycle Crash Causes and Patterns From: www.fdot.gov/research/Completed_Proj/Summary_SF/FDOT-BDV29-977-23-rpt.pdf

Statewide bicycle crash patterns and causes were identified based on a total of 26,036 bicycle crashes that occurred during 2011-2014. The descriptive trend analysis was based on temporal, environmental, bicyclist-related, crash location-related, and vehicle-related factors. The effect of roadway geometric features on the frequency and severity of bicycle crashes was also studied using data from 9,884.3 miles of non-limited-access state roads in Florida, which experienced a total of 10,546 bicycle crashes during the four-year analysis period. Some of the key findings include:

· Bicycle fatal crashes accounted for 5.6% of all traffic fatal crashes, while they constituted only 1.9% of total crashes. · The majority of bicycle crashes occurred on urban roadways; only 1.2% of all crashes that occurred on state roads occurred in rural areas. In terms of crash severity, 16.9% of all bicycle crashes that occurred on rural facilities resulted in fatalities while only 2.5% of those that occurred on urban facilities resulted in fatalities. · Nighttime bicycle crashes resulted in more fatalities compared to daytime crashes. · Crashes involving elder bicyclists (≥ 65 years) resulted in more fatalities compared to crashes involving younger bicyclists (< 65 years). · Crashes involving male bicyclists resulted in more fatalities compared to crashes involving female bicyclists. · Over 10% of all bicyclists involved in crashes who were under the influence of alcohol were killed, and a high 27.6% of all bicyclists involved in crashes who were under the influence of drugs were killed. · Crashes involving bicyclists using helmets or protective pads were less severe compared to those involving bicyclists using reflective clothing or lighting. · Although bicyclists were frequently hit while cycling on the sidewalk, these crashes resulted in very few fatalities. · Crashes involving bicyclists cycling along the roadway against traffic were found to be more severe compared to those involving bicyclists cycling along the roadway with traffic. · In terms of bicyclist's action at the time of the crash, failure to yield right-of-way was the most frequent contributing

cause, resulting in about 15% of total crashes. · Among all types of vehicles, passenger cars were found to result in relatively less severe crashes. Medium and heavy trucks resulted in more severe crashes; a relatively high 14.5% of all crashes involving medium and heavy trucks were fatal.

· Drivers were at-fault in 45.7% of the crashes, while bicyclists were at-fault in 30.2% of the crashes. · Crashes involving at-fault bicyclists resulted in a greater percentage of fatal crashes compared to those involving at-fault drivers. · Signalized intersections experienced a greater proportion of bicycle crashes compared to unsignalized locations. · Locations with bicycle lanes experienced a smaller proportion of fatal crashes compared to locations without bicycle lanes.

· Crossing the street was found to result in a greater proportion of fatal crashes compared to riding along the roadway. · Crashes involving bicyclists riding along the roadway facing traffic resulted in a greater proportion of fatal crashes compared to crashes involving bicyclists riding along with vehicles. · Crosswalk locations, although experienced a high frequency of bicycle crashes, experienced a relatively low proportion of fatal crashes.

The crash pattern analysis identified the following four major bicycle crash types:

· Motorist turns right while bicyclist is crossing the street · Motorist turns left facing bicyclist · Bicyclist rides out at intersection · Motorist drives out at stop sign

In addition to these crash types, the following bicycle crash contributing factors and scenarios were also observed frequently:

· Inadequate street lighting · Unconventional intersection geometry · Traffic violations by motorists and bicyclists · Bicyclists sideswipe vehicles · Driveways near intersections · U-turn maneuvers by bicyclists and motorists · Bicyclists hit the door of parked vehicle · Bicyclists ride opposite to the traffic

To view the entire report please go to: www.fdot.gov/research/Completed_Proj/Summary_SF/FDOT-BDV29-977-23-rpt.pdf