PEDESTRIAN CROSSWALK STUDY

Accidents in Painted and Unpainted Crosswalks

Project PS 69-2-001

by

Bruce F. Herms

This project is part of the
California Traffic Safety Program
and was made possible through
the support of the
Office of Traffic Safety,
State of California, and the
National Highway Safety Bureau

City of San Diego, California

Police Department, Traffic Bureau

Public Works Department, Traffic Engineering Section

August 1970

ABSTRACT

This study attempts to determine whether the pedestrian accident experience at unsignalized intersections is less in "marked" vs. "unmarked" crosswalks. Both types of crosswalks are legal. Section 275 of the California Vehicle Code defines a "Crosswalk" as either:

(a) That portion of a roadway included within the prolongation or connection of the boundary lines of sidewalks at intersections where the intersection roadways meet at approximately right angles, except the prolongation of such lines from an alley across a street.
(b) Any portion of a roadway distinctly indicated for pedestrians crossing by lines or other markings on the surface.

In Phase I of this study the accident experience was observed for 5 years (1963-67) at 400 unsignalized intersections, each having one marked and one unmarked crosswalk crossing the main thoroughfare. The results showed that during this 5-year period 177 pedestrian accidents occurred in marked crosswalks vs. 31 in comparable unmarked crosswalks. This indicated an accident ratio of 5.7 : 1.0.

In order to relate this accident experience to crosswalk usage a further study (Phase II) was made by the City of San Diego in cooperation with the State of California's Office of Traffic Safety and the National Highway Safety Bureau. In this study 40 intersections, constituting a ten percent sample of the original 400 unsignalized intersections, were each counted for 24 hours (Fall, 1969). The composite summary of these counts showed that the crosswalk use ratio was 2.9 : 1.0, marked vs. unmarked.

A detailed study of the intersections showed that "pedestrian accident ratios" and "crosswalk use ratios" tend to cover a range of values. But, in general, the study showed that "in terms of usage" approximately twice as many pedestrian accidents occur in marked crosswalks as in unmarked crosswalks.

Of particular importance were the findings, based on 5 years of accident experience at 400 unsignalized intersections, that pedestrians in the 25-44 year age group had no accidents in unmarked crosswalks, but were involved in 25 accidents in marked crosswalks. The 65-69 year age group showed a similar pattern with no accidents in unmarked crosswalks, but 13 accidents in marked crosswalks. Also of concern was the fact that during this 5 year period 49 pedestrian accidents occurred in marked crosswalks during the 5-7 p.m. time interval but during this time no accidents occurred in unmarked crosswalks.

This, plus other evidence, suggests that the poor accident record of marked crosswalks is not due to the crosswalk being "marked" as much as it is a reflection on the pedestrian's attitude and lack of caution when using the marked crosswalk. For this reason marked crosswalks should not be installed unless they are truly warranted.

In summation, unjustified and poorly located marked crosswalks may not only lead to increased pedestrian casualties, but may result in an increased expense to taxpayers for installation and maintenance costs which cannot be justified in terms of improved public safety.

conditions. It is well to note that the "unmarked crosswalks" described in thi study are indeed legal crosswalks. Thus, whether the pedestrian uses the marke or unmarked crosswalk is dependent upon his personal choice and not through any legal restrictions.

All of us should be aware that we cannot legislate the "impossible." State an local laws should always be realistic as to what we may reasonably expect the motorist and pedestrian to be able to comply with. It is hoped that this study will help provide a little better understanding on the nature of some of these limitations.

Conclusions

The results of this study show that pedestrian accident ratios and crosswalk use ratios tend to cover a range of values depending upon the type of intersection where the crosswalk is located. But, in general, more pedestrian accidents occur in marked crosswalks than in unmarked crosswalks by a ratio of approximately 6 to 1. Further comparison of the volume of pedestrians using the marked and unmarked crosswalks shows that the crosswalk use ratio is approximately 3 to 1. This would indicate, in terms of usage, that approximately two times as many pedestrian accidents occur in marked crosswalks as compared with unmarked crosswalks.

Evidence suggests that this poor accident record is not due to the crosswalk being marked as much as it is a reflection on the pedestrians' attitude and behavior when using the marked crosswalk.

In general, marked crosswalks have the following advantages and disadvantages:

A) Advantages

1. May help pedestrians orient themselves and find their way across complex intersections.
2. May help show pedestrians the shortest route across traffic.
3. May help show pedestrians the route with the least exposure to vehicular traffic and traffic conflicts.
4. May help position pedestrians where they can be seen best by oncoming traffic.
5. May help utilize the presence of luminaires to improve pedestrian nighttime safety.