SUMMARY REPORT 65-1(S)

ANALYSIS OF ACCESS VIOLATIONS ON CONTROLLED ACCESS FACILITIES

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Analysis of Access Violations on Controlled Access Facilities

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Scope and Objectives

Experience has shown that it is not enough to merely build freeways. To deliver the promised safety, comfort and convenience, freeways must have a high degree of operation attention. There were indications that one feature of freeway design, access control, has been violated and that additional controls may be required to insure access control.

The specific objectives of this study were: (1) to catalog the types of access violations on controlled access facilities, (2) to determine the extent and causes of access violations, and (3) to determine the effectiveness of various design and control features presently being utilized to prevent access violations.

Study Procedure

Data were collected on approximately 770 miles of freeway which included all Interstate Highways within the state. A data collection form was made to be completed by Texas Highway Department District Maintenance personnel. Data requested in addition to the data collection form were: a District Control-Section map showing the location of the facilities from which the data were collected, a schematic sheet with a sketch illustrating the conditions for each violation, photographs, if possible, and any pertinent information not covered in the form.

The data collection form was revised before data analysis. The data were punched into IBM cards and sorted to determine the extent of the different types of violations.

Results

Access violations were cataloged into types of violations determined by the path or route of the violator. Each type of violation described the freeway areas crossed during the violation maneuver and the violator's direction of travel. Twenty-eight separate types of access violations were observed and defined.

A total of 986 violation locations occurred over approximately 770 miles of freeway, a ratio of 1.3 access violation locations per mile of freeway. Twenty-five percent of these violation locations occurred on the 130 miles of urban freeway studied, a ratio of 1.9 access violation locations per mile of urban freeway.

The remainder of the violation locations occurred on 640 miles of rural freeway, a ratio of 0.85 access violation locations per mile of rural freeway.

Five of the twenty-eight types of access violations accounted for 63.2 per cent of the violation locations reported. These were: (1) separation strip crossing, exit where no exit ramp exists, (2) median crossing, (3) separation strip crossing, entrance where no entrance ramp exists, (4) unattended vehicle on shoulder, and (5) crossing the entire freeway system.

It should be noted that the number of violation locations did not take into account how often each violation was repeated. The true extent of access violations may be assumed to be several times greater than the total number of violation locations (986).

The primary cause of access violations was found to be that the violation route was the most convenient route. This generally resulted from one of the following two conditions: (1) that there was no ramp available, and (2) that there was no grade separation available.

The study of the effectiveness of corrective measures indicated that signs were rated as 78 percent ineffective and 22 percent effective. Curbs, chain link fences, and posts with barrier cable had a very high effectiveness ratio.

Since this project was a pilot study on the subject of access violations, the following additional subjects were presented in the report to furnish a more complete background: (1) types of access violators, (2) purposes of access violations, (3) average daily traffic, (4) additional distance to go the legal route, (5) severity of violations, (6) presence of violations, (7) freeway areas, (8) accident history, (9) profile, (10) enforcement, and (11) duration of violation.

Conclusions

The data were collected on a one-time basis on approximately 770 miles of freeway which included all Interstate Highways within the state. The conclusions, based on the study performed, were as follows:

1. A total of twenty-eight separate types of access violations were observed and defined.

2. A total of 986 access violation locations were observed on approximately 770 miles of Interstate Highways, a ratio of 1.3 access violation locations per mile of freeway. Twenty-five percent of these violation locations occurred on the 130 miles of urban freeway studied, a ratio of 1.9 access violation locations per mile of urban freeway. The remainder of the violation locations occurred on 640 miles of rural freeway, a ratio of 0.85 access violation locations per mile of rural freeway.

3. Five types of access violations accounted for 622 or 63.5 percent of the 986 observed access violation locations. These most prevalent types were found to be:

a. Separation strip crossing, exit where no exit ramp exists—204 violations—20.7 percent.

b. Median crossing—180 violations—18.2 percent.

c. Separation strip crossing, entrance where no entrance ramp exists—112 violations—11.4 percent.

d. Unattended vehicle on shoulder—68 violations—7.0 percent.

e. Crossing entire freeway system—58 violations—5.9 percent.

4. The primary cause of access violations was found to be that the violation route was the most convenient. This cause was indicated in over 52 percent of the violations.

5. Prohibitive signs were rated ineffective as corrective measures in 78 percent of the cases.

6. Curbs, chain link fences, and posts with barrier cable had a very high degree of effectiveness.

7. Access violators were cataloged as: (1) pedestrian, (2) vehicle, and (3) animal. Of these three, vehicles accounted for 94 percent of the access violators.

Recommendations

It was recommended that the violation of going the wrong way on exit ramps, which could not be evaluated by the method of data collection utilized, be studied.

The extent and severity of access violations shown in this report suggested additional studies on this subject. These studies should determine: (1) geometric design changes in freeway facilities which will coincide more closely with drivers' desires, and (2) the most feasible control measure to be used in eliminating violations now existing on freeway facilities.