highway lighting

NEW JERSEY
DEPARTMENT OF
TRANSPORTATION

bureau of
public information

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Since the days of the so-called running lights, when only the most daring would take his car out at night, the development of the automobile has brought about a steady increase in night travel and a corresponding need for more safety measures for the night traveler—among them a fixed source of lighting in many locations along the highways.

URBAN AREAS

Extensive use of night lighting came first in urban areas where it now serves vehicular and pedestrian traffic, increases patronage in business areas and gives a sense of comfort and security in residential areas. Where vehicular and pedestrian traffic come in conflict, adequate lighting is of the utmost importance.

RURAL AREAS

Lighting on interurban roads and state highways developed much more slowly. The automobile carried its own means of lighting the road ahead, intersections were relatively few, pedestrians rare. But as the use of the automobile increased, communities developed along these roads and the number of intersections increased, as did the number of pedestrians. All these factors compelled consideration of fixed light sources along highways. The clinching argument was the night accident rate. Traffic volumes dropped at night but the accident and fatality rates did not. In some areas it rose.

EARLY RECOGNITION

The recognition of the need for highway lighting came early to New Jersey. A corridor state with traffic volumes far greater than the national average, it can be said New Jersey pioneered in this endeavor. Almost thirty years ago the Transportation Department began a program of highway lighting for the safety of night travelers. The longest continuously lighted section of highway in the United States, at the time, was on the White Horse Pike (Route 30) between Camden and Absecon, a distance of fifty miles.

EARLY STANDARDS

In the beginning the criteria and standards for highway lighting were rather elementary; there were no formal standards to accept as a guide. New Jersey highways had few interchanges and overpasses; with few exceptions intersections were at grade. Lighting design was influenced by these conditions and the presence of two and three-lane highways with no separations of opposing traffic.

ACCIDENT FACTORS

In the absence of design criteria, the approach to this problem had to be realistic and practical. Serious night accidents were investigated as soon as possible. Many high-volume sections of highway were patrolled around the clock. This was in no sense a police investigation or patrol, the object was to identify all physical aspects of the site that may have contributed to the accident (we have similar investigating teams today). When the absence or inadequacy of lighting may have been a contributing factor adequate lighting was designed and installed. Favorable results were at once apparent, even though traffic volumes steadily mounted.

PROGRESSIVE STANDARDS

As information was gained and experience developed the Department was able to identify locations where highway lighting would reduce accident potential and to install them before accident experience developed. From all statistics available, New Jersey spends more for highway lighting on its land service highways than any other state in the union. (Land service highways are defined as roads with free access to residential and business establishments as differentiated from highways of freeway design where access is limited to interchanges.) Today the 1,810 miles of land service highways in New Jersey have 1,181 signalized intersections and 26,900 lighting units, nearly 15 per centerline mile. The expenditures for the fiscal year 1963-64 was $1,175,599 or approximately $650.00 per centerline mile. This does not include lighting maintained by municipalities where the highway is the main business street.

LOCAL-GOVERNMENT AID

In 1937 the New Jersey Transportation Department originated a Highway Lighting Reimbursement Policy to give financial assistance to municipalities willing to share in the maintenance of highway lighting, where it could be

justified. It was agreed that, rather than distribute the money equally among all the municipalities where highway lighting on state highways might be required, certain sections of highways should be lighted regardless of municipal boundaries, where from a standpoint of traffic volume and accident frequency it was felt that highway lighting would curtail the largest percentage of accidents. The first appropriation was $150,000 dollars. Since that time the program has grown in scope to the present $409,517 annual commitment by the Department. The Department now has agreements with all 21 counties and 565 incorporated municipalities.

INTERSTATE ROUTES, STATE FREEWAYS

With the development of the freeway system of highways a new concept for lighting had to be developed. These routes have no intersections at grade, no pedestrian traffic, no place where opposing traffic is not separated by some form of positive barrier or wide island.

The prime need on these routes is guidance at interchanges. Lighting is only justified where it serves this need. Light patterns were established accordingly.

SAFETY FACTORS

It is altogether wrong to think of lighting as the only, or even the major contributor, to the safety of night travel. The features which make a highway safe by day still contribute to safety by night. Adequate shoulders, white curb, traffic lines, guard rails, delineators, effective signing, low angle of ramp divergence, long deceleration and acceleration lanes, one-way ramps, separation of opposing traffic, absence of pedestrians – all these contribute to traffic safety 24 hours a day. Lighting needs are drastically reduced on highways having these features. All freeways completed, under construction or in the planning stage in New Jersey are so designed.

But regardless of the many safety improvements along the highways, accident and fatality rates continue to climb. Traffic experts estimate that better than 90% are due to road violations.

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